



FRIDAY, SEPTEMBER 9.

Contributions.

The Emigrant and the Railroad.

NO. I.

The railroad's interest in the emigrant does not begin as he boards its west-bound train. For several months previous this individual may have been expected by the road's emigration department, and from him, as a fact, the department may have been able to infer something about its future volume of business. For this tide of immigration is indeed a tide, resembling the flood and ebb of the ocean on our coasts in more than one symbolic aspect, and while we may not fully understand all its movements, and every cause contributing to these, there is no doubt that, as with the ocean tide, we know its secret. It is a very simple one. It is an exhibition of the force of (human) gravity.

The home-returning sympathy and generosity of the immigrant are proverbial. Everyone knows that he is just after bringing over his sister or his cousin or his sweetheart: and yet (we may be mistaken here) few appreciate that this is the greater determining and guiding force of the tide. Other causes, such as conscription, low wages and the like, are what may be called conditioning or preparatory causes, and have been much written about, while this simple influence, which has such determining and guiding force, has been much neglected.

The European peasant's condition has improved side by side with the increase of emigration; his local disasters and oppressions have had their temporary influence upon him, to be sure, but the life and force of the current of emigration has had its centre in America.

AN ENDLESS CHAIN.

Emigration is an endless chain of human relations, affections and sympathy. Those who fail to appreciate this aspect of it are entirely ignorant of the whole subject. We have been struck, in talking to men who come into direct contact with the mass of emigrants—they, business men, in their business offices, immediately turn to the state of the emigrants' feeling as the determining cause in the whole matter. A letter has come to a little village from the venturesome Hans who long since went to America. Every one must hear this letter of Hans' about the great, new, free country, and there is much talk over the matter. One, two, three, a whole family will go, but by-and-by, not now—it is a great thing to journey off so far, never to come back.

So there is much talk about the letters and nothing done. But another day it is told all about the village that Hans, the prosperous Hans, has sent another letter with a passage-ticket for his brother Jacob, who will go by it in two months. There is earnest talk now, and one, two, half a dozen will positively go with Jacob, and are anxious to purchase orders for passage. But where? to what point shall they go in the new country? Surely, nowhere else but where Jacob is going and where Hans is, our friend Hans, who would have been in no sense a friend, hardly was he an acquaintance, in the fatherland, but who, in the new country, will be the one friend and comfort.

This personal side of emigration, if we may call it so, is the side which is so influential in determining and shaping the facts, that those who know the traffic by immediate contact place it above all others.

It is probable that nearly or quite one-third of the immigrants who arrive in New York came by orders purchased for them by their friends in this country with money earned on our soil. But even this immense prepaid emigration is only a nucleus for another mass, which, in little parties, gathers about it as a determining and guiding influence. And in addition to this large proportion of the total sum, there is another great fraction which belongs with it—those who come with letters in their hands, it may be with a copied or even recopied letter, as their only guide-book to the new country.

That mass of emigration (excluding possibly the Italian) which comes without a previously selected point of destination is not more than one-sixth of the whole.

We cannot give exact statistics, but the above is the average of independent estimates made by careful men who come into contact with the tide at several distinct points of its influx.

WHO ENCOURAGES EMIGRATION.

Those who are familiar with this traffic as it is but seen in the mass in New York, have but one opinion on this point. They believe there is just one method of encouraging emigration—and this is simply giving the immigrant now on our soil the best possible chance of doing well. They have little belief in the efficacy of any other means, and they look upon all artificial agencies as of little or of doubtful value. The enormous flood of the past two years is looked upon as having been determined mainly by the prosperity of our foreign-born citizens in common with our own. It has been an individual and personal matter, determined not by reports, but by influences, and among these, as perhaps worthy of the largest place, that definite expression of personal confidence, sympathy and prosperity, the prepaid order for steamship and railroad transportation.

It is said that this system of prepaid orders was invented by Harnden, our pioneer expressman, and that he conceived the plan at the time he established his express-

agencies. The Erie Railroad also claims the invention, and may possibly hold credentials to it. Our purpose is accomplished in calling attention to this system as the key to the whole subject.

It places the control of the railroad emigration traffic in the hands of the steamship companies, who might do as they would with it, apparently, were it not for the checks afforded by their traffic relations with a great railroad.

The past history of these relations between the steamship companies and the railroads meeting at New York port and terminus has been a curious one, full of points too delicate and yet too knotty to explain in this article. It is sufficient to say that with the enormous increase of the traffic, the past has been easy to forget and its difficulties easy to remove. Our immigration has risen from 75,000 persons in 1878, to 135,000 in 1879, 327,000 in 1880, and 310,000 in the present year, with three promising months to come—for, as we have said, the volume of tide may be anticipated by those who possess the key.

There is no railroad pool, and there are no foreign agents on the part of anyone in New York, so far as we can find out, who have any right to a commission for encouraging emigration. The trunk lines act only, with the exception of the Pennsylvania, which has its own steamship line, as common carriers. The steamship companies have their thousands, (a single line has 3,000) of agents in this country, who sell under their instructions orders for transportation by rail as well as by steamer, and they have their agents at foreign ports; but we have yet to find that there are, in any special sense, agents to encourage immigration. Your true and almost exclusive agent devoted to this purpose is Patrick and Jacob and Schwartz and Bridget and Marguerite and Anna. We are less certain about Leonardo and Bianca.

THE DIVISION OF THE TRAFFIC.

The Pennsylvania Railroad controls, we believe, both the American Line of Philadelphia and the Red Star Line of New York. Some of the other and larger steamship lines of New York give it no part of their arrivals, but divide their entire traffic between the Erie and the New York Central, giving to each road the alternate steamship's load.

The railroad pays a commission to the steamship company on all the "prepaid" and "cash" business delivered to it—"prepaid" being a technical adjective representing transportation orders sent from this country, and "cash" a similar term denoting orders purchased in Europe.

This commission has been calculated upon the total amount prepaid for or by the emigrant for railroad transportation, including that fraction of his prepaid fare due to other roads. It has been paid upon the \$10.25 charged from Chicago to St. Paul, as well as upon the \$13 of fare to Chicago.

HOW TO GET IMMIGRANTS.

All that is needed to encourage immigration to any locality which has real advantages of comparative value to offer the emigrant—not advantages on paper, but solid and substantial means for him to earn something more than a livelihood at a safe and not unhealthy occupation—is a nucleus. If this nucleus of immigrants is already planted on the soil, money to encourage further immigration is best spent for them in any way which will result to their substantial benefit. They are the most influential agents to be found; and to send broken-down men to New York city "to encourage emigration" among a mass of emigrants, whose destiny is already fixed, and to neglect a hundred means of assisting and of using those already on the ground is mere official play-acting. Somebody is very anxious to appear to be doing something, but nobody, evidently, has any adequate comprehension of the true and simple history of the emigrant. If those who are on the ground are not doing well, the time has not arrived to send for others. Find out the cause of the failure of the pioneers and remove it if possible. And, in this respect, one should not be too ready to find fault with the quality of the material of the first immigration. The Italians, who began to flock to this country some years ago, were for a time a very nightmare of pauperism to our commissioners of emigration. Seven hundred at one time were on their hands to be cared for; but to-day the whole class is self-supporting, and in good demand as laborers.

On the other hand, there is a small class, the first to be attracted by gilded circulars, who are some of the poorest material for settlers which can be found. These are small trades-people and clerks from the towns, unfit for heavy work, and who, when once discouraged, are the most difficult of all our emigrants to deal with. Those who write circulars for distribution abroad should not forget the injury as well as the good they may accomplish, and should be specially careful how they tempt on to the unbroken soil those who have never had anything to do with hard labor or with farming. All misrepresentation, however, is injurious, and may be even fatal. It is the intelligent immigrant of good character, and some little store of money, who is most likely to be offended in this way, and one such man or family returning to their old home deceived, or, what is the same thing, satisfied of deception, can do great injury. It cannot be too much insisted upon that it is not the reports, but the influences which come from this country, in the form of definite and unmistakable facts, which are the life of emigration.

Where there is no nucleus of immigrants already on the ground, the safest and most direct means of getting one is to apply to the New York Commissioners of Emigration, at Castle Garden. Third parties in a financial transaction, however, are often a source of expense, if not of difficulty, and it is better to arrange for transportation of such immigrants directly with the trunk lines.

One of the most efficient means for encouraging emigration both to this country and more particularly to the West would

be a safe method of financial assistance in getting transportation from our seaboard, not open to abuse. The great difficulty with the intending emigrant is want of money. The late Elihu Burritt organized, in one of the large English towns, a society for the assistance of intending emigrants, but it was found they could not, as a rule, pay one-half the cost of their transportation. One of our consuls at a North British port said recently that he had discovered a society of "pit-men" (miners), who paid each a penny a week toward a common emigration fund, casting lots for the prize whenever it became sufficient to carry one or more over the water.

In February, 1879, the New York Commissioners of Emigration issued a circular inviting the attention of the authorities of the several states and territories to the lack of information as to the most desirable places for immigrants to settle, and offering to keep open for the inspection of immigrants all requisitions for laborers received from the proper authorities, giving address of employers, occupations, wages, etc.; and also information as to soil, manufactures, etc., at places where immigrants are wanted.

The only state which has given much attention to this circular is, we believe, South Carolina, which has an agent at Columbia, who communicates with the farmers and other employers of labor in the state, and sends their orders to New York with orders for the emigrant's transportation. The baggage of the emigrant, if he can be found, is then checked through to his destination, and the checks sent to his employer.

The experience of the state and of several companies and private individuals has, we believe, been favorable to this system. Considerable difficulty has occurred in the case of single men so transported, but not in the case of married men with families. The Commissioners have now an order for 1,000 German families, which, however, they cannot supply immediately, as probably not more than one-eighth of the total emigration are open to such arrangements.

NEW YORKER.

Mexican Apprehensions Concerning American Railroads.

A correspondent of the Chicago Tribune writing from Mexico says:

Amid all this, however—amid rejoicings over the improved physical and financial condition of the people—there are other thoughts which arise to the mind of many. What will the future be politically? Articles are not infrequent in Mexican periodicals, expressing the fear that the end will be loss of national existence, or, in other words, annexation to the United States. The recollections of the unfortunate display of our ambition and greed have not yet disappeared, and there is still among many classes a lurking fear that it may again show itself. All articles bearing on Mexico in the American papers are translated and commented on here, however unworthy of credence. There are here many liberal-minded men, who are willing to believe that the United States wishes only the friendship of Mexico, and to aid her to become strong and prosperous. They use their influence to dispel illusions and prejudices. But as the editor of one of the papers here told me—a man who is doing what may be in his power to spread our true sentiment among our people—there are other classes who say among themselves, "Can the Americans annex us?" "Yes, they can if they wish." "Will they?" They do not hardly think they will, but they are afraid that that event may take place.

In this place the views expressed by the *Monitor Republicano*—the leading paper of this city, and the organ, as it claims, of the Moderate party—may not be out of place. It neither favors the policy of the Liberal party represented by Porfirio Diaz and the present President, nor that of the Conservatives, who would prefer to have no intercourse whatever with the United States. Articles had been attributed to it by some of the American papers, asserting that the object of Gen. Grant's visit to this country was to found Caesarism on the ruins of the Republic; and that the resignations of Col. Fred Grant and Gen. Ord were parts of that design. It, however, disclaimed the parentage of the above articles, stating that "These were notices which the telegraph and the periodicals of the neighboring Republic communicated, and which the *Monitor* reproduced, because it reproduces everything which refers to this country—even the articles in which those who have received in Mexico generous hospitality call her the Turkey of America—because all these give our fellow-citizens a knowledge of the state of opinion in the neighboring country." Instead of attributing such motives to Gen. Grant, it claims to have given his project its strong support, and to have contributed to dispel all such rumors in regard to the object of his visit. His road did not meet its disapproval as the others did, as it does not run to the American frontier. Following are its own views:

"Strong opposition," it says, "have projects for the construction of railroads in our frontier states of Sonora, Chihuahua, Tamaulipas and Coahuila, encountered in the *Monitor*, since it is against military rule to construct ways of rapid communication on the frontier, without their being bound to the centre—for it may result from this that the frontier will be accessible to the foreigner, but not to the nation; also, it is anti-economical to develop the commerce of any region of the country with the exterior before it is opened up to the interior. These elemental rules of the military and administrative sciences the government has undervalued, creating thereby dangers to the nation, for which we censure it."

"The colonization scheme of Mr. Brannan was not to our liking," it continues, "because the history of this country has taught us that it is dangerous to colonize the frontier states without previously colonizing the centre, and without binding them by interests and byways of rapid communication with the remainder of the country."

Capt. Eads' project met likewise with its disapproval, not, as it claims, "because it was American, but because very dangerous to Mexican autonomy."

These expressions apparently represent the views of a considerable party here—those who wish to see their country progress, but who accept American influences only because, from the condition of things, they must do so or remain in their present backward state. But while accepting it, they would place upon it limitations; they would prevent American colonization in the frontier states; they would, for the present at least, close those regions against American activity. Laws now exist on the statute-books, passed during previous administrations, disqualifying any native or naturalized citizen of the United States from acquiring title to any public land within sixty leagues of the border.

Railroad Signaling in England.

In our issues of March 25, April 15, May 6 and July 8 we reprinted from the *London Railway Engineer* the first four of a series of articles on signals. We give herewith the fifth (the last we shall reproduce) of these articles, which appeared in the June number of that periodical:

With regard to signal wire compensators, several of which have been described, we desire to mention the arrangement known as Gaunt's, illustrated at fig. 60 a. It is designed to provide an accurate and delicate adjustment of the wire, according to the variations of temperature, secured without the addition of heavy and cumbersome weights, whether on the back tail of the lever or elsewhere.

The wire from the signal passes over the pulley A, thence by two smaller pulleys to back tail; the pulleys are all free to revolve. It is evident, therefore, that the weight, if sufficiently heavy, will keep the wire constantly stretched. When the lever is pulled over for the purpose of taking the signal off, a wedge-shaped brake block is pulled up into the grooved wheel A, and prevents it from revolving, and the whole being free to move on the pivot E, the signal wire is drawn in and the signal pulled off. If anything breaks or goes wrong the signal instantly flies to danger.

Several of these compensators have been fixed on the Northeastern Railway to signals at from 800 to 1,100 yards distant from the cabin, and on curved portions of the line, and have given satisfaction.

We have alluded in a previous issue to appliances relating especially to conducting traffic upon continuous up or down roads without further lateral deviation than curvatures of easy or limited radii will allow.

We now pass on to consider the arrangements and signals of simple branch lines or sidings, so contrived that trains are enabled to travel divergently, or convergently from one pair of rails to another without the aid of turn-tables or traversers, and by which one or more continuous roads are made to radiate to or from a main line. This is effected by movable rails termed "points" or "switches," which, guiding the flanges of the wheels, thus conduct the train in the desired direction from one road to another. Fig. 61 represents a blind siding provided with and controlled by a pair of such movable rails or points, and into which a train may be shunted for the purposes of unloading or allowing another train to pass; great care and vigilance must be exercised during such operations to prevent accidents. Railway companies are obliged to almost exclusively utilize their main lines during the day for passenger traffic, and even many hours of the night, so that light engines, empties or goods trains, can only be introduced at available intervals, and subsequently shunted at various places to let the former pass without delay or interruption. From these daily interferences with the main line traffic about half the annual accidents are to be distinctly traced.

Originally the "point rails" consisted of a pair of ordinary tapered metals about 3 ft. to 5 ft. long, working upon centres at their heel ends, and which were to be opened or closed by the stoker of an approaching engine, whose duty it was to descend and introduce a bar or lever between the tongue and main rail, and thus hold the points in position while the train passed over. Subsequently this primitive arrangement was modified by providing them with fixed connecting rods worked by stationary hand levers situated in the immediate vicinity of the points.

When an engine or train first approaches the thin or free ends of the points, as would be the case in a train diverging direct from the main line to the by pass in fig. 62, they are termed "facing points;" but when the approach is effected convergently from a branch to the main line by passing through the heels or fixed ends of the points, as would be the case in passing out of the by pass forward to the main line, then they are called "trailing points."

The arrangement and construction of the points or switches will be better understood by reference to figs. 63 and 64 in the annexed drawings, which represent a transverse sectional elevation of the point and main rails and details of point connections respectively.

The main or stock-rails are filed flat upon their inner sides to receive the point-rails which are correspondingly faced, and secured in the chairs of special design, so as to provide a smooth horizontal surface for the point-rails to move upon laterally.

The point-rails to crossings are of various lengths, from about 100 to 180 ft., with a radius of about 600 ft., and of gradual tapering section; and are rigidly connected together by the transverse horizontal rods A, secured by a hook and eye or split key fastening, as shown. The angle of crossing should be about 1 in 10, and length of free switch about 14 or 15 ft., while their throw at face extremity should be 3½ to 4 in. The points are usually actuated by a cranked connecting rod B, fastened to that of A, which passes under the rails, and carried by suitable bell crank gear to the levels in the signal box, in accordance with the Board of Trade's requirements. In some cases guard-rails 8 ft. or 10 ft. long are provided on the outer side of inner rail as additional safety precaution, while the outer curved rail is slightly elevated according to the gauge, length of chord and maximum speed of trains. The length from the tangential point of curve to the centre of crossing varies according to the nature of crossing to be constructed. Great attention must be paid to the secure fastening of the point connections to prevent the possibility of their becoming loose or broken, by which a train might be thrown off the line; and likewise equal importance must be placed on the accurate motion and fitting of the points against the inner face of the stock-rail.

The connecting rods (Fig. 64) are usually constructed of gas-pipe of 1 in. bore in convenient lengths, and coupled together by female screw sockets E, and work over small guide pulleys C, carried by small cast-iron frames attached to the sleepers. The point and connecting rods, A and B, may be attached to bell crank levers at various places, according as it may be desired to modify or change the direction of motion. And it is generally considered advisable to make these connections as far as possible of wrought iron, although some engineers have claimed advantages from constructing their cranks of cast iron, and in cases where the points had been suddenly subjected to severe abnormal strains the cranks had given way as the weakest parts and thus saved the entire system from thorough injury and derangement.

The joints of the rails should be all fished with moderate length of bearings, or the sleepers will rock, and the chairs secured to the sleepers by iron spikes; while the ballast should not be filled in too close to the ends of the sleepers, as the elasticity of the rails will then allow for considerable lateral displacement.

The distance from the point connections to the signal-box seldom exceeds 400 ft., but when over 90 ft. it is usual to place temperature compensating gear in the centre of the same, to allow for expansion and contraction in a similar manner to that already described in connection with signal wires.

Now the difference of temperature between a cold night and a very hot day (a frequent occurrence in this climate) would cause an expansion of over two inches in metallic rod

connection of 350 to 400 ft., giving an amount of movement to the points quite sufficient to throw a train off the line or send it into a wrong road, and many sad accidents in days past have resulted from this cause. When these connections were first extended to the signal boxes it soon became obvious that some means must be devised to prevent this variation of length actuating the points, and for this purpose the rods were provided with right and left screw couplings, so that the signalmen or platelayers could continually adjust their lengths according to the requirements of the temperature, an arrangement exactly similar to that first introduced, and still much used, for the same purpose in connection with distant signal wires.

But these continual variations soon prompted the necessity of some automatic means of compensation, and for this purpose the following simple arrangement was introduced by Messrs. Saxby & Farmer, as shown at fig. 65. The point-rods B are divided near their centres, and the two extremities connected to levers D, at right angles, by means of radius rods b, whereby any alterations of length in the rods B (e.g., by contraction) cause the levers D to take oblique positions and thus give corresponding additional lengths on each side of it, through which the desired motion may be transmitted from the boxes for actuating the points.

Figs. 66 and 67 show modifications of the above principle as used by different railway companies. In the former two compensating levers, D and D', are employed, the fulcrum of the first one being in the centre while its lower extremity carries a connecting rod attached to the centre of the second lever, which has its fulcrum situated at its lower end. The action is similar to that first described, and the direction of the arrows show how the levers have assumed the converging attitude to allow for expansion.

In the latter figure bent levers of the first order are used, while the arm D is provided with a slot F, which takes into it a stud formed on the lower extremity of the other lever D'; its action is a mechanical equivalent for the other two arrangements, but it is preferred by some because it is compact, and can be all placed under the ground out of the way. In the drawing, the arrows likewise indicate the rod undergoing compensation for expansion, and as their ends are necessarily brought closer together, a corresponding depression follows in the slotted arm.

Before the systematic introduction of interlocking apparatus, additional semaphore or disk and lamp signals, known as "point indicators," were provided near the tongues of all branch lines or junctions, and worked in concert with the points by being suitably connected to the rods A or B, so as to indicate to the driver of an approaching train the position of the points, i.e., whether right for main or branch lines: now, however, in most instances these ground signals are rendered unnecessary, except for sidings, special passing places, goods, or engine yards. Figs. 68 to 79 represent various kinds of such point indicators as employed on our different railways for the latter purposes above mentioned.

The first figure is one of Messrs. Saxby & Farmer's arrangements for indicating the position of the points for the main or loop lines, and in the drawing is shown as right for the former. It is an ordinary double semaphore, so arranged that while one arm is up the other must be down, as the points could not possibly be right for different traffic at the same time. At night the signal is given by the relation the red light bears to the green, i.e., points right for "main," shows green light to the left-hand, and red to right, and vice versa for the "loop."

Fig. 69 represents a disk signal, as used on the Great Western Railway. Its normal position is when the red light or disk is turned toward the yard or siding, and signifies that at that position nothing may come out, and it is provided with small white and movable purple backlights, that the signalman may tell how it stands, and at all times whether the lamp is burning brightly. The proper motion is imparted to the spindle carrying the lamps and disks by a prolongation of the point-rod terminating with a rack which engages with a pinion, as shown. In some cases the indicators are counterweighted, so that in their normal condition they always remain right for the through or main line. Fig. 70 shows another modification of indicators used by Great Western Railway, a very good form of ground signal for ordinary shunting purposes. It is worked by a crank connection from the point-rod, and is provided with an auxiliary hand lever for emergencies, which likewise serves to indicate and secure the points in their proper positions by means of a pin passing through the handle into a corresponding relative hole in a guide plate.

Fig. 71 shows another form of ground signal employed by that railway company, and the novelty consists in the arrangement of the lamp lenses which are placed at an angle of about 45 deg., so as to concentrate and project the light upward, so that the light can be readily seen from the siding but not for any distance upon the main line.

Fig. 72 represents Messrs. Stevens & Sons' point indicator, and consists of a single arm which is caused to travel in an arc to the right or left, according as the points are right for the main or branch lines. Upon the arm's axis is fixed the usual pair of spectacles, which partake of corresponding angular motion over the face of a lamp for transmitting the required signals in foggy weather or at night.

Fig. 73 shows another arrangement by which the indicator is actuated by a wire, chain, or other suitable flexible connection and taken back to its normal position by means of a counterweight.

Fig. 74 is a box indicator, as used by the London, Chatham & Dover Railway Company. The lamp is contained within the vertical cylindrical casing. The red screen and spectacle glass is worked by the usual bell-crank and connecting rod, but its angular descent is facilitated by its own weight as soon as it is moved out of the vertical. In order to compensate for this accelerated motion, a counterweighted arm is provided on the same spindle, which also serves to lighten the disc's replacement.

Fig. 75 shows an ingenious contrivance by Messrs. Deas & Rapier. The semaphore arm works upon the usual centre and carries the spectacles at one end, which are weighted so as to keep the arm up. A little in advance of its axis is fixed a stud or pin which works in a vertical slotted rod, the lower end of which is connected to the balance-weight of the switches, so that the least motion of the points would put the signal to danger, while on the other hand a very little downward motion leaves the rod hanging on the semaphore stud, which overbalances the arm and brings it down. These indicators, although not much used in this country, are extensively adopted in Australia and America.

Fig. 76 represents a novel piece of apparatus devised by Mr. Brunton, C.E., for the Great Indian Peninsular Railway, by which moving and locking the points and giving the signals were all effected by one lever and one operation, a great desideratum for native superintendence, and less expensive than complete locking gear. By means of the hand-lever the disc is turned, and at the same time the point-rail elevated, which can only be done when the line is clear; its further movement depresses the points into position and finally locks them, the signal arrow being always directed toward the side of road rightly prepared.

Figs. 77, 78 and 79 show various modern point indicators

as manufactured by Messrs. Saxby & Farmer, and adopted on many of our different railways.

In the first arrangement the point-rod B is connected to a disc or circular stop plate C, which is capable of circular reciprocating motion through an arc of 90° when it is arrested by the stops or projections situated to the right and left.

In fig. 78 the requisite motion is imparted to the signal spindle by means of the flattened end of the point-rod D, provided with a notch which engages with a projection on the spindle, the angular movement of the latter being controlled by stops E. The counterweight in combination forms a complete compensating ground signal.

Fig. 79 represents a miniature duplex ground semaphore signal, similar in action and indication to that described at fig. 68; the arm lowered or green light shows to the right or left signifies points right for the main or branch lines respectively, but it is so arranged that the two signals cannot be off together.

The semaphore and spectacles are actuated by the flattened end of the point-rod G, which has formed in it a rectangular notch, which engages with levers at the lower end of the signal rods.

As, not unfrequently, carriages and wagons have accidentally left their sidings and traveled on to the main line from the action of the wind, or by being placed on a slight gradient, a simple appliance termed a "scotch" was devised. The arrangement is shown at fig. 80, and consists of a block of wood, A, free to turn about a centre at one end, so that when the line is being used it may be turned parallel to the same to offer no obstruction; but when the vehicles are left in the siding the block is turned at right angles across the line, presenting an impediment over which the wheels cannot pass. The free end may be, when desired, secured by a pin to fit over a staple, and receive a padlock or bolt.

In fig. 81 is illustrated a modified form of the above, as arranged by Messrs. Saxby & Farmer, and consists of a combined wrought-iron scotch and ground signal to show when the former is on or off the line. The scotches for the sidings are controlled by rods R, worked from the signal box or by a ground hand lever, and their combined action with the signals will be readily understood by reference to the drawing, in which the dotted position indicates the condition of the apparatus when the line is clear.

When the ordinary hand scotches are used the guards of trains calling at sidings are held responsible for their being properly fixed on the rails and locked with the points before the engines and vans go away, while their proper working condition and security is under the charge of the inspectors of permanent way.

In many cases only one ground signal is used at sidings for both the in and out traffic, which is not as safe as employing two separate or distinct signals.

We will now return to the question of facing points previously alluded to, which, although in many instances are very convenient, nevertheless are generally considered as dangerous and undesirable if possibly avoidable. Shunting by these points is unquestionably more rapidly effected, as a train may pass straight into a siding while still moving forward, without stopping until it is clear of the main line, whereas with trailing points much more time is occupied, as the train has first to be brought to rest and then backed off the main line until its whole length is pushed into the siding, clear of the main line. But notwithstanding this greater delay and interference with traffic, there is rightly a great feeling in favor of this latter class of points, and Mr. T. C. Harrison, Civil Engineer of the Northeastern Railway, and Mr. R. Johnson, of the Midland Railway, with other experienced railway engineers, have frequently expressed their aversion to facing points; and for years on the Northeastern Railway there were only about four facing points between York and Berwick, a distance of 160 miles; now the increased traffic has necessitated a few more, at Newcastle and Darlington.

An error in working the trailing points is seldom of the serious consequence which attends that of facing points; in the former the flanges of the wheels pressing against the inner sides of the rails always tend to move and maintain the points in their proper position, whereas in the latter the least inaccurate movement or adjustment is most dangerous, and may cause the train to enter the wrong road or leave the metals altogether.

However, facing points have been extensively used amid heavy traffic, e.g., near Euston station, without causing any accidents of moment. And the use of such points are in certain places still indispensable, e.g., at Cannon street station and other termini where the same cross-over roads are used for both in and out traffic; but as the speed of the trains in such cases is extremely slow, accidents of importance seldom occur.

However, where facing points are necessarily employed, their use are now rendered more reliable than hitherto by the adoption of ingenious safety appliances in the form of point-locks or bolts, which prevent the respective signal levers being pulled over, unless the points have been properly closed. Such devices will be referred to in detail later on.

It is the common practice on the American railways to mount the arms or discs and lamps of facing-point indicators at a considerable altitude in contradistinction to the low ground signals of trailing-point indicators, so that due precaution may be taken as to speed.

The question of efficient and safe siding, shunting and signaling accommodation is one of vital importance to all, especially when we come to realize the close relation in which goods traffic is worked with that of passenger traffic, as exemplified by the number of cases in which the main or branch passenger lines of our railways are connected with or crossed by goods or siding lines.

On the Great Western there are 139 lines connected with goods, 2,389 connected with sidings; on the London & Northwestern 284 connected with goods, 2,080 connected with sidings.

And as a summary of such railway connections and interferences in the United Kingdom at the present time we have: Goods lines 1,367, sidings 19,445. But it is wonderful with what comparative safety such complicated traffic is conducted by the present ingenious mechanical and electrical signaling appliances, for it must be remembered that, independent of goods shunting, it is an every day practice to shunt passenger trains at various places to let mails or tidal trains pass without delay.

These shunting operations have to be conducted with every care and expedition, within a very limited time, so as to prevent the following trains being delayed by danger signals, either at the blocking box of the section or near the site of shunting.

Further, no shunting is allowed to be proceeded with after the main signal is off, nor must any risk or delay be incurred by permitting inferior trains to run too closely in front of those of greater importance.

In fact, great care and vigilance has to be exercised in all cases, to insure that after the line clear signal has been transmitted and acknowledged, no obstruction of any kind is on the section within the home or stop signals.

At night drivers of shunted trains have to exercise great care that they do not accept wrong signals to leave the sidings by confusing semaphore with hand lights; therefore,

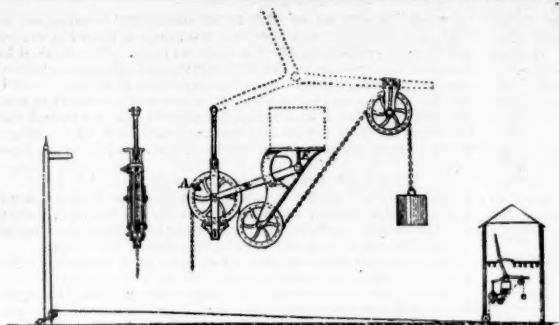


Fig. 60.

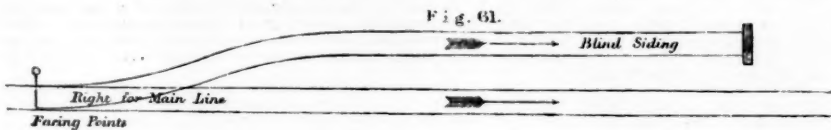


Fig. 61.

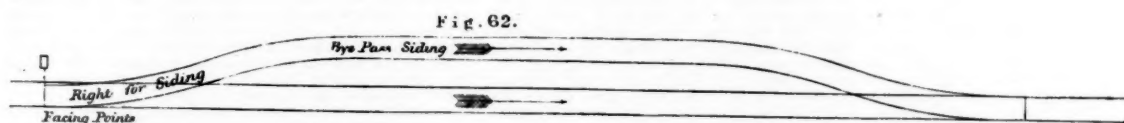


Fig. 62.

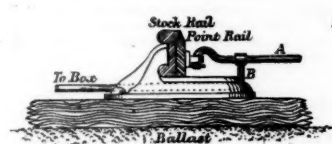


Fig. 63.



Fig. 64.

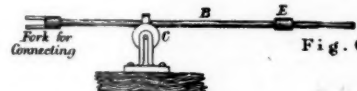
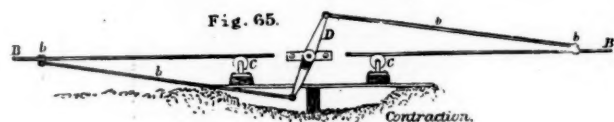


Fig. 65.



Contraction.

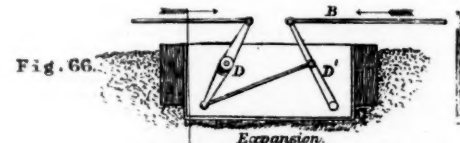


Fig. 66.

Expansion.

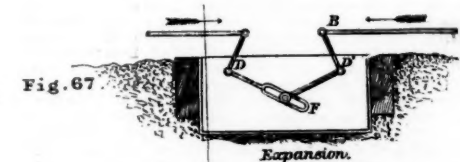


Fig. 67.

Expansion.

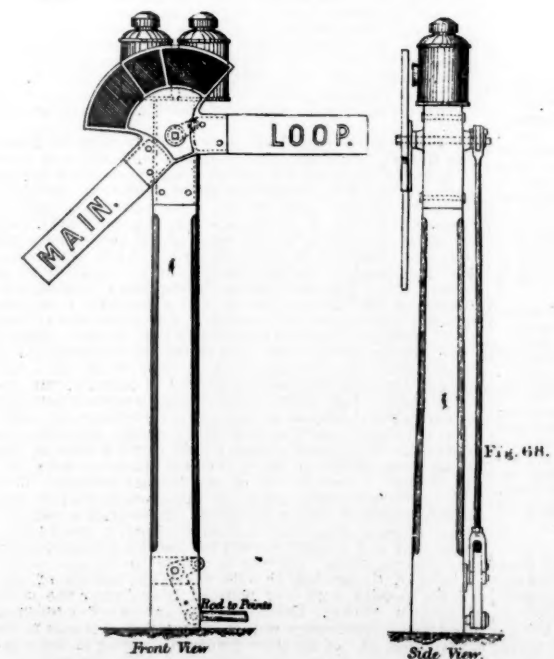


Fig. 68.

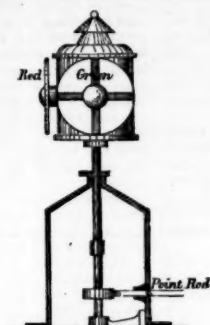


Fig. 69.

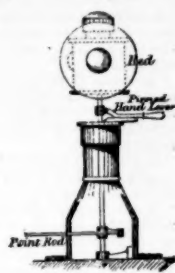


Fig. 70.



Fig. 71.

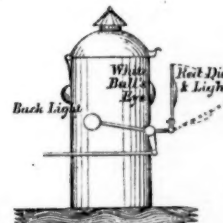


Fig. 72.

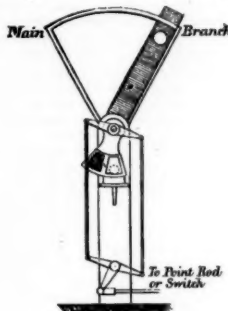


Fig. 73.



Fig. 74.

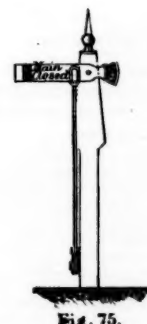


Fig. 75.

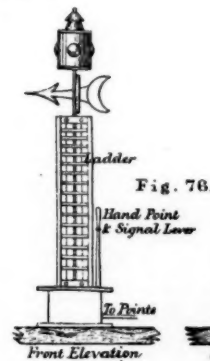


Fig. 76.



Fig. 77.

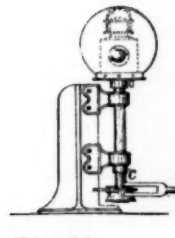


Fig. 78.

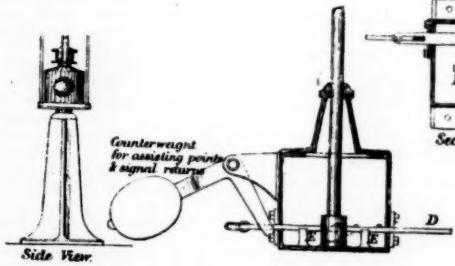


Fig. 79.

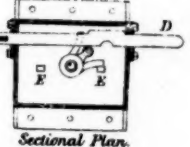


Fig. 80.



Fig. 81.

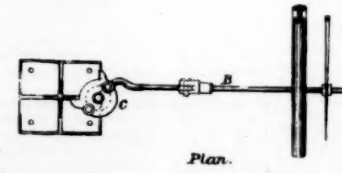


Fig. 82.

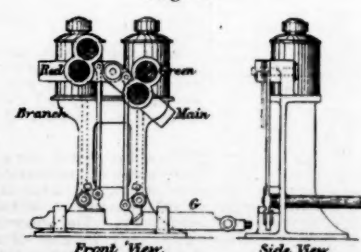


Fig. 83.



Fig. 84.

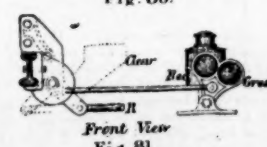


Fig. 85.

whenever there is not a separate semaphore or disk signal, especially for shunting traffic, hand signals are used, but in this case the station signals should be kept at danger. But whenever possible, special stop and starting signals should be provided for siding and yards of a distinct type, so that the trains may stand or shunt under the protection of separate signals.

No train should be allowed to cross over from one line to another at a road siding, and the use of such accommodation is generally likewise prohibited in snowy weather, unless the chief guard has been speedily informed that the points have been cleared.

Neither should two trains, which have to cross each other's track, be allowed to approach a right-angled level crossing at the same time.

A separate goods yard, communicating only at the ends with the main line, is an improvement which greatly tends to advance the safety of traffic, by confining the shunting operations to a local and independent site.

The Great Northern Railway for some time past has adopted at considerable cost a system of turn-outs or passing places for giving additional accommodation to goods and slow train traffic, e. g., the up line passing place between Hatfield and Potter's Bar, a distance of 5 miles, at an outlay of £20,000, which, although expensive, is much cheaper than doubling the line the whole way from King's Cross, which was estimated to cost about £1,000,000 to Hitchin.

A similar system of passing places or a modification of the same has been likewise successfully adopted on the London & Northwestern, the Great Eastern, the London & Brighton, and other large railways.

And among those actively engaged in the question of goods accommodation was Mr. F. C. Weir, who submitted a scheme to the Board of Trade in 1875 for simplifying the working by a system of partially separating the goods and passenger traffic. He proposed to establish goods depots at various fixed intervals, arranged parallel to and on each side of the up and down main lines, from and into which goods trains should start and arrive, and likewise back into when necessary, instead of stopping on the main line, thereby preventing cross shunting and also relieving passenger stations and termini from such dangerous subordinate traffic.

The Commission on Emigrant Tickets—Mr. Blanchard's Letter.

The following letter was addressed to the Western Trunk Lines Association, Aug. 18, by Mr. G. R. Blanchard, Vice-President of the New York, Lake Erie & Western Company:

We hereby protest against the action taken by the passenger representatives of your lines (in January last) to exact from us full second-class passenger proportions on emigrant traffic from Jan. 1, 1881, and we regard such action as unfair, unreasonable and uncommercial, for the following reasons:

For more than twenty years you have accepted from us special net rates for the transportation of emigrants over your lines, westward from Chicago and St. Louis. The whole theory of our conduct of the business and of our contracts to secure and handle it being based upon the necessary principle of co-operation between the ocean and the combined and continuous rail lines in starting, guiding and landing at their destination an essentially helpless class of people, guarding them against imposition and extortion by lending them helping hands from their old homes in Europe to their new ones in America. To accomplish this mutually desirable individual and railway result special and expensive methods, not required in other passenger business, have to be employed.

Recognized emigrant forwarding agencies must be located in the thousands of cities and villages throughout this country and Europe; these agencies are almost the only places where intending emigrants or their friends can obtain reliable information as to the cost and details of transportation and the methods (which frequently change) of getting from the old to the new land; and it is only through these multiplied forwarding agencies that one charge for the combined ocean and inland transportation can be offered and availed of by the emigrant, and kept uniform via the various routes. Every one of these forwarding agents is therefore an agent first to develop emigration, and secondly to furnish, commercially, necessary through orders or tickets to enable the emigrant to get cheaply and regularly from his starting point to his destination, and the railways to have and enforce uniform rates.

Being such a necessity, the expense of maintaining these agencies should therefore, upon every principle of interest and equity, be sustained by each and all of the transportation lines in the entire route of that travel. The ocean steamship companies recognize these services, by paying commissions on the ocean fares to every American seaport, and it has, as you know, been the justly recognized and undeniably proper custom of the trunk lines in America and the Western connections they represent to similarly pay such forwarding agents a reasonable commission for the manifestly valuable and commercial service rendered by them. Such agents have (first) to maintain, office rents and expenses to pay, and give their time to answering queries, printing and circulating advertising maps, time-tables and other information necessary to the intending emigrant, and they get a commission or pay only on those they actually forward, while they inform and answer thousands whom they make nothing from.

All that we pay them for is actually booking and forwarding passengers, and for distributing necessary printed matter, etc., and is well earned by them; and it should not be forgotten also that these agents necessarily receive, care for, divide and account for and distribute the fares received by them from emigrants in exchange for the necessary passage orders; and this care and responsibility should not be neglected, and cannot be procured by us, without proper compensation, any more than in all the other branches of your business.

They also save you actual risks and outlays, as you look now to them, through us, for your returns without risks, when you would otherwise be compelled to furnish officers and clerks at Chicago or elsewhere to supply their wants, sell tickets, make out returns, and be responsible. So apparent are these equities that your companies, relying only upon the power of a pooled organization, and upon no principle of custom or justice, and while exacting a rate per mile in excess of what the same emigrants pay by rail anywhere else in the world, alone refuse either to reimburse the laboring agent or the connecting line which else incurs the entire work, responsibility and detail of their transit. It is therefore a trade necessity that all concerned cheerfully recognize that the emigrant must be provided a through fare and a through ticket, a through settlement and a through commission from starting point to destination, because it is a long customary, reasonable and proper method for combined action by all the links in the through transportation line, and no link in the through line is justified in refusing to stand its proper share of such necessary commission and other incidental expenses attendant upon the proper care

and handling of a class of people who cannot care for themselves; and by such refusal, unjustly throw all that labor and outgo upon the companies which, having inaugurated and for years followed this business-like and sensible course, cannot now change it simply at your call without wide-spread dissatisfaction, in many cases refusal to comply, and in other cases positive financial loss. No link in this line has a moral right to shift an unavoidable public and trade labor and responsibility upon its neighbor; and the associated lines west of Chicago and St. Louis had none for shifting their share of this equitable and common burden to the shoulders of the trunk lines, any more than the trunk lines to shift the whole burden upon your lines or upon the steamship companies who were the original locators of these thousands of forwarding agents.

There is in this system of agents a mutual benefit, and there should be a corresponding and recognized mutual labor responsibility among the transportation lines in sustaining them. This principle was so often explained to and so well understood by our Western connections, and our running contracts with ocean steamship lines and forwarding agents in Europe and America have been so publicly known to be based on it that we were surprised that during the month of January last we received notice from the associated Western lines that, dating back from Jan. 1 (which no casuistry can justify), and for the future, they would exact of the trunk lines full second-class proportions on all emigrant business and without rebate.

So far as rebate cut your rates we acknowledge and applaud your action; so far as it cut off your share of expenses, we deprecate and protest against it.

The Western lines well knew, or should have known from at least 20 years' experience, and should have asked us if they did not know, that we were under running contracts from year to year with steamship companies and forwarding agents, and that we could not honorably retire from our obligations without proper notice. This in our judgment is the more indefensible when it is regarded that these emigrants mainly settle on the refusing lines, where, in your specific rates on their subsequent local travel, and your disproportionate charges on the through products of their wants or industries, you get all the great and permanent benefit from their coming to this country. Their action was unjust, in that it called upon us to pay them more than we ourselves received for tickets over their lines; in that it was *ex post facto* in character and therefore unfair. It was unreasonable in the light of the facts above presented, and it was arbitrary in the extreme; because the Western lines, after hearing the arguments of the general passenger agents of the trunk lines in their Chicago meeting in April last, declined to accept any compromise; and at the general convention held in New York the month previous, the Western lines studiously avoided conference with the trunk lines on this subject, although advised of our willingness to meet them.

As the Western lines now claim there is a "dead-lock," and as it has not been brought about by the trunk lines, we propose that it be broken by a conference of the managers of the Eastern and Western lines interested; and if then found unavoidable and necessary, the matters in dispute be referred to arbitration. So far as this company is concerned, we wish to make it matter of record that we have thus desired and sought to harmonize all differences in emigrant or other passenger matters, and still have faith that such harmony can be so restored by taking up all questions *de novo* and without prejudice, and endeavoring to arrive at fair conclusions.

Railroad Sanitation.

Dr. S. S. Herrick, Secretary and Treasurer of the Louisiana State Board of Health, recently submitted a paper with the above title to his State Board, at a meeting Aug. 25 last, with the following introductory letter:

"In presenting for your consideration the following scheme for railroad sanitation, I desire to state, in introduction, that the subject has engaged a share of my attention for several months, and that I regard it yet as far from complete in its present form, since it has undergone various modifications in the light of increased knowledge and continued reflection.

Meanwhile it has been submitted to a number of my friends—medical men and sanitarians—both in New Orleans and elsewhere—all of whom have regarded it as highly desirable and advantageous, in a sanitary sense. In this connection I take the liberty of saying that one of our citizens, who has achieved a national reputation as a sanitarian, formerly President of this State Board of Health and now President of the American Public Health Association, is giving practical evidence of his approval of the plan in urging its adoption by the most important railroad companies in the Southwest. To this I would add that the managers of three of the principal lines terminating in this city have signified their approbation of it as a matter of expediency and economy to the railroad companies."

OUTLINE OF A PLAN FOR RAILROAD SANITARY SERVICE. FORMULA.

1. Organization and superintendence of a system for prompt relief to sufferers from the casualties of travel upon the lines, including officials, employees and passengers. Assistance in the adjustment of claims for personal damage in such casualties.
2. Examination of those engaged in the movement of trains, with reference to defects of sight and hearing, and diseases of the heart and great vessels, as a prerequisite to their employment; advice concerning the personal hygiene of employees in all branches of service.
3. Inspection of the sanitary condition of passenger coaches, of grounds and buildings, and recommendation of improvements wherever needed. As occasion presents, counsel in the selection of sites and in the construction of works and buildings.
4. Organization and superintendence of a system of meteorological observations at selected stations along the lines.
5. To guard against danger of infecting railroad coaches, stock and goods, by transportation of diseased persons or animals, or of infected personal baggage or merchandise; against danger of conveying contagion from one point to others, and against injury to stock in transit from overcrowding, long confinement and deprivation of food and water.
6. To confer with national, state and local sanitary authorities, with the view of obtaining or moderating restrictions on travel and traffic, and to represent the company in sanitary and quarantine consultations, wherever its interests may be affected.

REMARKS.

"The above sketch for a company operating extensive lines contemplates a sanitary department under the superintendence of a chief medical officer with the necessary number of subordinates at suitable intervals, in readiness for any emergency. The subordinate medical men would be required only in case of accidents, or occasionally to make physical examinations of employees. Meteorological observations could be made by telegraph operators along the line.

Some of the features of this scheme are not entirely new in this country. The first, particularly, has been partially

adopted by several of the most important companies, but without putting the whole service under a uniform system, and the superintendence of a medical man. The second has been put in practice by the Pennsylvania Railroad Company, and has been imposed upon the railroads of Connecticut by the Legislature of that state. It is unquestionable that near-sighted, color-blind and deaf men should not be trusted with the movement of trains and locomotives; nor men liable to sudden death from organic faults of the heart or large blood vessels.

The third and fourth might superficially be judged of minor importance, but it is apparent that the latter could be made supplementary to the National Signal Service, thereby greatly enlarging its operations, to the benefit of the railroad companies, as well as the inhabitants along the lines.

The fifth and sixth would be everywhere beneficial, but especially for lines running out of New Orleans, on account of the general apprehension of yellow fever from this quarter, and liability to restriction or interruption of business. The fifth section would be important to roads largely engaged in the transportation of live stock, particularly to roads leading out of Texas.

In this way the general management of a railroad company would be brought into harmony with sanitary authorities, communities would feel safe from infectious diseases, and panics and unreasonable interruptions of business would be prevented.

While sanitarians cannot fail to appreciate the advantages of such a service to the public, the actual question at issue for a railroad company would be a pecuniary one. In most respects the scheme is essentially a kind of insurance against risks of serious loss, and more truly so than fire and marine insurance, for the service aims at *prevention* instead of *reimbursement*. It is evident that the dangers constantly impend, and that the plan fairly promises their preclusion; therefore the point to be determined is whether the risk justifies the premium; in other words, whether the service would save more than its cost.

It might save much more in preventing disasters, in averting interruption of business, in obviating troublesome prosecutions for damages. More than this, it would create confidence in the management, a sense of security among the public, the value of which could not be precisely estimated, but might become appreciable by comparison of rival routes adopting different policies.

THE SCRAP HEAP.

A Car with a History.

The Philadelphia Press gives the following account of a car which has carried many noted men:

"Car No. 120, which was built years ago at the Altoona shops of the Pennsylvania Railroad for Col. Scott's private use after he became an invalid, is the one referred to in Washington dispatches as being held in readiness to carry the wounded President away from the malarial atmosphere of the White House. The car was used for many years by President Scott in his long journeys through the South and West, and has carried in turn nearly all the distinguished guests the Pennsylvania Railroad management have entertained. Although long in service, it remains one of the finest pieces of workmanship the skilled machinists at Altoona have ever produced. Special tests were employed on the springs, which were made of the finest steel and are eight in number, or twice as many as the new Eastlake passenger coaches have. There are 12 wheels, instead of 8, and in the running movement of the coach there is scarcely any perceptible jar, owing in a measure to extraordinary stability of its construction. The sides are blood-red in color, like most of the Pennsylvania Railroad coaches, and absolutely without ornament, even the usual gold-work being conspicuous by its absence, a style of decoration in which Col. Scott's simple tastes are instantly recognized. The running-work of the car is brown. The wheels are like those used under the Pullman parlor cars, and are painted a bright green, unlike the other stock of the railroad.

"No. 120 is noticeable on account of its unusual length, 63 ft. having been found none too long for the builder's notions of what a private hotel car should be. Inside it has a drawing-room, private bedroom and bath, dining-room large enough for 10 persons to sit at the big mahogany table at the same time, and a kitchen furnished in a way that would satisfy the most exacting cook. The platform at one end of the car is 5 ft. wide and inclosed by an iron railing, with seats for those who choose to sit in the shelter of the low side windows, with the scenic panorama gliding away in the wake of the train, for the President's car is always the rear one, while signals are made with the engineer by means of an electric bell. The drawing-room of the car resembles the cosy cabin of a yacht designed for Asian sailing. There are books and writing-desks, as well as card-tables, while over the book-case a small French clock ticks sharply, even when the car is idle. The woodwork of the interior is black walnut, and the finishing something after the models of the Pullman cars. There are soft rugs on the floor, easy chairs near the walls. The drawing-room is lighted by eight windows, and at night by a middle cluster of four lamps overhead, with as many more on the side. The rigid simplicity of the exterior has not been carried out here, for the drawing-room is ornamented by solid mahogany and finished in silver and gold.

"A door on one hand leads to the private room of President Roberts, and a smaller apartment, with sufficient room for a narrow bedstead, not a bunk, which faces two windows in the opposite wall, while a second door leads to the bath. From the opposite side of the drawing room a narrow passage-way leads to the dining-room, which is 25 ft. long and about 10 wide, or the full width of the car. Above the carpet the finishing is partly in cherry, while the divans, extending parallel with the dining-table, are upholstered in golden plush. There are four unfolding beds overhead constructed on the Pullman pattern, and which have been used by many directors of the Pennsylvania Railroad and friends of Col. Scott, who used to accompany him on his extended tours. In the dining-room, as in all the other apartments of the car, there are ventilators which may be opened in the opposite direction from which the car is moving, thus insuring plenty of pure air without causing a current through the car, while the fine wire sieve netting, covering the ventilators effectually guard against flying cinders and dust. A broad table with square corners stands in the middle of the dining-room, while on either side, by throwing back the silk curtains, a view is had of the scenery without. Two folding doors opening from the dining-room lead to the kitchen, which is almost as large. It contains a pantry, a large kitchen range with an oven overhead, a broad table, wine-cooler and a smaller closet for dish-washing and other culinary operations. All that is visible to the eye in the finishing of the kitchen is solid wood, like the rest of the car; the metallic work is of polished brass, after the style of modern yachts. Devoted as the car is of cumbersome furniture or unnecessary weight of any kind, it is said to be heavier than any of the other coaches belonging to the company.

"No. 120 was made the reception car of Col. Scott not long after the war, or, in other words, soon after the Prince of Wales became the guest of the Pennsylvania Railroad on

his extended journey through the South and West from New York. The Grand Duke Alexis, Prince Arthur, President Grant, President Hayes, and members of all the Cabinets since 1872 have traveled in it. The car was placed at the disposal of President Garfield on his notable journey from Mentor to the capital before the inauguration, and it brought ex-President Hayes away from Washington after that event. Col. Scott's trips in the car used to extend half way to the Pacific coast or to the Texas and Pacific lines in Texas. The refrigerator in the kitchen has ample space for a month's provision if need be. Since President Roberts' election perhaps his most notable guests have been the Duke of Sutherland's party of English railway men and members of Parliament, who traveled over the Western lines five months ago.

This car was not used to carry President Garfield away from Washington as at first intended, another car having been specially prepared for that purpose. The famous car accommodated the President's attendants, however.

Attempt at Train Wrecking.

A dispatch from Abington, Mass., Aug. 25, says: "An attempt was made this morning to wreck an early train from Bridgewater to South Abington, on the Bridgewater Branch of the Old Colony road. When the train was about a quarter of a mile north of East Bridgewater the engineer discovered an obstruction on the track, consisting of sleepers laid crosswise. The train was going at the rate of 35 miles an hour, and the engineer was unable to stop the train before reaching the sleepers, which were struck by the engine. Fortunately no damage was done, except the smashing of the pilot and headlight. Between this place and South Abington two other obstructions were found on the track, consisting of stones weighing about 200 pounds each, and another batch of sleepers."

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Chicago & West Michigan.

This company which succeeded, through foreclosure in 1878, to the Chicago & Michigan Lake Shore, owns a main line from New Buffalo, Mich., north to Peotwater, 170 miles, with branches from Holland Junction to Grand Rapids, 24.4 miles; Junction to Big Rapids, 51.2 miles; Woodville to Muskegon River, 13.12 miles; Mears to Hart, 3.2 miles; and White River Junction up White River 5.12 miles, making 267.04 miles in all. The Muskegon River, Hart and White River branches, 21.44 miles in all, were bought or built last year. The report is for the year ending Dec. 31, 1880.

The general account is as follows:

Stock (\$23.037 per mile).....\$3,151,000.00	
Bonds (\$1,898 per mile).....480,000.00	
Bills, accounts, etc.....196,430.85	
Income account, balance.....281,564.84	
Total.....\$3,707,001.69	
Road, etc. (\$25,326 per mile).....\$3,761,997.27	
Material.....41,783.05	
Bills and accounts receivable.....158,561.51	
Cash.....116,659.86	
Total.....\$3,707,001.69	

The bonded debt consists of old first-mortgage bonds which were not included in the foreclosure; they bear 8 per cent. interest. The stock represents the greater part of the former funded debt. The road earned last year, deducting interest, 3 1/2 per cent. on the stock.

The traffic for the year was as follows:

1880.	1879.	Increase.	P. c.
Train miles.....654,032			
Passengers carried.....307,694	248,287	59,407	24.0
Tons freight carried.....433,401	345,468	87,933	25.5
Ton miles.....29,187,030	23,775,583	5,411,446	22.8
Rate per ton per mile.....1.892 cts.	1.792 cts.	0.100 ct.	5.6

Of the tons carried last year 215,185 were lumber and forest products; 57,247 grain, flour, animals and other farm products; 16,424 coal; 26,695 ore; 6,647 stone and brick, and 198,213 merchandise and miscellaneous articles.

The freight traffic shows a very considerable increase. The increase in the average rate is notable on this road,

much of whose business is done in competition with water routes on Lake Michigan.

The earnings for the year were as follows:

1880.	1879.	Increase.	P. c.
Passengers.....\$255,365.30	\$198,635.48	\$56,731.82	28.5
Freight.....532,226.90	429,080.65	103,146.25	29.6
Mail, etc.....32,429.78	29,689.78	2,740.00	9.2
Total.....\$840,021.98	\$657,405.91	\$182,616.07	28.4
Expenses.....600,438.40	541,556.98	58,881.42	10.9
Net earnings.....\$239,583.58	\$115,848.93	\$123,734.65	112.4
Gross earn. per mile.....3,145.69	2,964.43	181.26	18.1
Net earn. per mile.....955.46	459.40	496.06	108.1
Per cent. of exps.....71.48	82.75		

The increase in expenses was much less in proportion than that in earnings, in spite of the increased mileage worked and the greater traffic handled, showing a very large gain in net earnings.

The income account for the year is as follows:

Balance, Jan. 1, 1880.....\$75,467.35	
Gross earnings.....840,021.98	
Interest and miscellaneous.....4,913.91	
Total.....\$920,403.24	
Working expenses.....\$600,438.40	
Interest on bonds.....38,400.00	
Total.....\$638,838.40	

Balance, Jan. 1, 1881.....\$281,564.84	
Dividend, Feb. 15, 1881, 2 1/2 per cent.....153,572.50	
Total.....\$435,137.34	

During the year the sum of \$22,953.42 was charged to construction account for additions to property, and \$71,202.64 to equipment account for a steam excavator, a steam fire-engine and hose-car, 35 box cars and 100 flat cars.

Since the close of the year the company has purchased the Muskegon Lake lumber road, the Grand Haven road (Allegan to Grand Haven) and the Grand Rapids, Newaygo & Lake Shore (Grand Rapids to White Cloud). An extension of the main line from New Buffalo southward is in progress.

During the year 576 tons steel rails and 92,151 ties were used in renewals. There were 2,246 lineal feet of trestle filled up. The purchase of 9 miles of logging road and the building of 5 1/2 miles more were included in expenses, the total cost of the 14 1/2 miles being \$58,490.16. An extension of the White River branch to Crooked Lake is to be made to reach pine forests which are just being opened to lumbermen.

St. Paul, Minneapolis & Manitoba.

This company's report for the year ending June 30 shows at the close of the year 861 miles of road, to which six miles have since been added, making 867 miles. Its lines extend from St. Paul to the Manitoba line and through the Red River Valley.

The equipment consists of 89 locomotives; 7 sleeping and 74 passenger, mail and baggage cars; 1,491 box, 62 stock and 969 flat cars; 52 caboose and tool cars and 34 gravel cars.

The general account is as follows:

Stock.....\$15,000,000.00	
Bonds.....18,107,700.00	
Floating debt and current balances.....3,109,323.59	
Sinking fund, balance.....31,290.01	
Profit and loss.....1,288,361.33	
Total.....\$37,536,585.95	
Road and property.....\$34,825,533.63	
Fuel and materials.....828,856.57	
Stocks, bonds, accounts receivable.....1,639,185.83	
Cash.....243,007.92	
Total.....\$37,536,585.95	

The funded debt consists of \$7,221,700 first-mortgage bonds; \$8,000,000 second-mortgage bonds; \$2,400,000 Dakota Extension bonds; \$120,000 old St. Paul & Pacific bonds, due Sept. 1, 1881, and \$366,000 St. Paul & Pacific bonds due July 1, 1892.

The earnings for the year were as follows:

1880-81.	1879-80.	Inc. or Dec.	P. c.
Passengers.....\$819,929.50	\$672,047.81	\$147,881.69	22.0
Freight.....2,691,772.54	2,084,711.78	607,060.76	29.1
Mail and ex-press.....100,428.46	70,798.83	29,629.63	41.7
Rents, etc.....88,721.37	105,549.72	16,828.35	15.9
Total.....\$3,700,851.87	\$2,633,108.24	\$1,067,743.63	26.2
Expenses.....1,746,095.62	1,300,512.82	445,582.80	34.3
Net earn.....\$1,954,756.25	\$1,332,595.42	\$622,160.83	19.7
Gross earn. per mile.....5,271.87	4,471.20	800.67	17.9
Net earn. per mile.....2,784.56	2,488.72	295.84	11.9
Per cent. of exps.....47.80	44.33	3.47	

The average mileage worked during the year was 702 miles last year against 656 miles the previous year.

The income account was as follows:

Earnings.....\$3,700,851.87	
Interest and exchange.....4,600.26	
Proceeds of land sold.....223,831.92	
Total.....\$3,929,284.05	
Expenses.....\$1,746,095.62	
Taxes, etc.....116,939.51	
Interest.....1,109,950.90	
Proceeds of land sales transferred to sinking fund.....223,831.92	
Total.....\$3,196,817.95	

Surplus for the year.....\$732,466.10

The road-bed of the old part of the line has been much improved and nearly all the bridges rebuilt. At the close of this season there will be 410 miles laid with steel rails. There were added to the equipment 24 locomotives; 2 sleeping and 10 passenger, mail and baggage cars; 634 box and 460 flat cars; 37 caboose and tool cars and 4 gravel cars.

The report of President Stephen says: "During the year the company acquired, by purchase and consolidation, the St. Cloud & Lake Traverse Railway, from Morris to Brown's Valley, 47 miles, and the Moorhead & Barnesville Railway, from Barnesville to Moorhead, 22 miles—all within the state of Minnesota, 69 miles. It has also built of its Dakota Extension from Breckenridge, Minn., to Durbin, Dakota, 48 miles; from Moorhead and Fargo to Grand Forks, 76 1/2 miles; and from East Grand Forks to Ojata, Dakota, 1 1/2 miles. It has also built from Wayzata, Minn., to the west end of Lake Minnetonka, 6 miles—112 miles; making of new lines acquired by purchase and construction during the past year 211 miles. In addition to the foregoing the company is building, during the present year of the Dakota Extension, about 200 miles, and a branch northeast from Carlisle up the Pelican Valley, 18 miles. The company has also acquired the charter of the Minneapolis & St. Cloud Railway Company, to which is attached a land grant of 10 sections per mile. The construction of this line from St. Cloud to a point on the St. Paul & Duluth Railroad will be proceeded with this autumn. Under a contract made with certain shareholders of the Minneapolis & Northwestern Railway Company, this company has further agreed to construct a line from the city of Minneapolis,

north and west of the Mississippi River, to the extent of 100 miles (50 miles of which is nearly completed), which, it is believed, will ultimately form a valuable protection and adjunct to the company's property in this state.

"During the past year the company purchased 5,004 shares of the preferred and 7,947 shares of the common stock of the St. Paul & Duluth Railroad Company, and has made a traffic arrangement with that company, which, together with the construction of the Minneapolis & St. Cloud Railway, will afford this company a much needed outlet for the business of its southern lines to Lake Superior on favorable terms."

"The company has issued its bonds for \$2,400,000, covering 200 miles of branch lines, payable in 30 years, and bearing interest at the rate of 6 per cent. per annum, in the proportion of \$12,000 per mile of completed and equipped railway. A dividend of 3 per cent. on the capital stock has been declared, payable at the office of the financial agent in New York, on Aug. 1. The sale of lands by the company during the year, for cash and on credit, have amounted to 97,863 acres, representing the sum of \$571,156, from which has to be deducted the amount credited and the liability incurred to settlers for cultivation under the terms of the company's contracts, \$110,751. The total cash received over and above the expenses of the Department, as principal and interest on land sales, and as consideration for real estate disposed of by the company, has been \$223,881, which sum is applicable to the sinking fund for redemption of the first-mortgage bonds. Of this issue, \$778,300 in bonds have been redeemed to date. * * * The company's land grant comprised about 3,848,000 acres, of which there have been sold to date 1,185,837 acres; and the amount remaining unpaid on outstanding contracts, less liability to settlers for cultivation, is \$1,103,553. The falling off in the sales of the company's lands this year, as compared with last, arises from causes of a temporary character, and is mainly attributable to the large extent of government lands which have been opened for free settlement and have been brought within easy reach of immigrants by the extension of railroads in this state and the adjoining territory."

Manhattan Elevated.

The report of ex-Judge Dillon and Mr. A. L. Hopkins, the Receivers of the Manhattan Railway Company, in the case of the suit of the people against that company, was sent to Judge Westbrook, Sept. 2. This report, less the schedules and explanatory documents, which are very voluminous, reads as follows:

"We respectfully submit the accompanying documents giving statements of the business of the Manhattan Railway Company from Feb. 1, 1879, to July 14, 1881, and its financial condition at the last named date, together with schedules of the property turned over to the Receivers. The Receivers, under the order and appointment of this Court, assumed control of the Manhattan Railway Company July 15, 1881, since which date the accounts have been kept in their names."

"During the period embraced in the statements the earnings of the two companies, as shown by the books of the Manhattan, have been as follows:

New York Elevated lines:	
Gross earnings Sept. 1, 1879, to July 14, 1881.....\$4,939,491.43	
Operating expenses.....2,901,699.40	
Net earnings.....\$2,037,792.03	
Add net earnings from Feb. 1, 1879, to Aug. 31, 1879.....642,090.28	
Total.....\$2,679,882.31	
Metropolitan Elevated lines:	
Gross earnings Sept. 1, 1879, to July 14, 1881.....4,213,677.40	
Operating expenses.....2,640,454.86	
Net earnings.....\$1,573,222.54	
Add net earnings from Feb. 1, 1879, to Aug. 31, 1879.....324,068.88	
Total.....\$1,897,291.42	
New York Elevated net earnings.....\$1,808,191.42	
New York Elevated net earnings.....2,679,882.31	
Metropolitan Elevated net earnings.....1,897,291.42	
Total.....\$4,375,365.15	

Add amount of accrued operating expenses and other charges allowed for in operating account, less amount paid, applicable to operating expenses from balance of fiscal year and not included in the above.....49,704.74

Total net earnings.....\$4,627,778.47

Receipts from sale of Metropolitan bonds, old material, equipment, etc.....5,913,901.18

The total disbursements have been.....10,455,749.98

Balance cash on hand.....\$86,019.67

The liabilities of the Manhattan Company, including \$13,000,000 capital stock, are.....14,110,674.39

The assets, including the two leases valued at \$13,000,000, are.....13,383,353.50

Deficiency July 14, 1881.....\$727,318.80

The contingent liabilities are: Unpaid taxes in dispute less amount deposited with United States Trust Company.....703,832.50

Deficiency, including disputed taxes.....\$1,431,151.30

"The liabilities include \$480,646.25 due to the New York Elevated Company, and \$578,242.39 to the Metropolitan Elevated Company."

"There are also claims in litigation amounting to \$978,871.69, of which \$302,175 are for alleged damage to property; \$250,000 for alleged infringement of patent; \$5,770 for breach of contract, and \$420,996.64 for personal injuries, assault, detention."

"The amount of capital stock, \$13,000,000, is represented in the assets by cost price of the leases, that amount in stock having been divided between the two lessor companies, or their stockholders, as a consideration for the leases. No money was paid on account of the capital stock."

"The report of the Consulting Engineer, B. H. Shreve, gives the result of his investigations of the condition of the elevated railway structures, after a close examination extending over several months."

"To confirm this report the Receivers have thought prudent to employ Mr. Isaac Newton, Engineer of the Department of Public Works, and his report confirming that of Mr. Shreve is also filed herewith. The work which these reports call for will cost about \$175,000, and the Receivers respectfully ask for authority to make this expenditure. Notwithstanding the necessity of these repairs, the report of the consulting engineer concludes as follows:

"As the general result of my investigations, extending over a space of some months, and from my knowledge of the structures when they were erected, it gives me pleasure to be able to say in concluding this report that they are in better condition and safer to-day than when first operated. There are no signs of deterioration of the iron or indications that their life is by any means to be a short one."

The equipment of the New York Elevated road consists of 109 engines, 271 passenger cars, 10 gondola and supply cars. That of the Metropolitan is 65 engines, 316 passenger and 6 gondola cars.



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EDITORIAL ANNOUNCEMENTS.

Passes.—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

Addresses.—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITOR RAILROAD GAZETTE.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

WHEAT AND RAILROADS IN MINNESOTA.

As the result of an elaborate canvass of all the different wheat counties, estimates of the production of each of which are given, the St. Paul Pioneer Press reports the probable wheat production of Minnesota this year to be 33,771,511 bushels, against 39,371,800 last year. The acreage was 2,960,363 this year, and but 290 acres less last year; and the decrease of 5,600,000 bushels is due to a reduction of the average yield per acre from 13.3 to 11.4 bushels.

We do not purpose to comment on the estimate of yield, but only to call attention to the distribution of the production in Minnesota, especially as it affects the several railroad lines. The crop is a very uneven one, the average yield varying from 5 to 18 bushels per acre in different counties, but also the area sown to wheat varies greatly in different localities, and this is not very well understood, or is misunderstood.

On this account we have footed the estimated yield in the counties on each of the principal Minnesota railroads, so that the amount of wheat on each line may be known and compared. All the counties on a line are given, and as frequently one county is on two or more roads, the totals would be far greater than the Minnesota production; but the statement is made to show how much wheat the several lines of road have within their reach (though not all safe from the competition of rivals), and the progress made by each since last year:

Wheat on Minnesota Railroads.			
	1881.	1880.	Inc. or Dec.
Northern Pacific.....	2,596,494	2,410,230	Inc. 186,264
St. Paul & Duluth.....	909,500	1,215,998	Dec. 306,498
St. P., Min. & Man.:			
St. Paul-Breckenridge.....	4,293,805	4,866,000	Dec. 572,195
St. Paul-Pembina.....	4,974,697	4,871,908	Inc. 122,789
Chl., St. P., Min. & Oma.....	4,510,700	7,079,338	Dec. 2,568,598
Minneapolis & St. L.....	6,114,998	7,521,003	Dec. 1,406,005
C. & N. W.:			
Hastings & Dakota.....	4,232,744	5,501,003	Dec. 1,268,259
River Division.....	6,803,795	7,813,432	Dec. 1,009,637
Iowa & Minn. Div.....	5,136,844	5,273,724	Dec. 136,880
Southern Minnesota.....	4,713,998	6,461,150	Dec. 1,747,152
C. & N. W.:			
Winona & St. Peter.....	9,076,194	9,014,183	Dec. 1,237,089

Again we caution the reader that counties are repeated, sometimes again and again, in the above table,

so that the sum of the [yields on different lines given above is vastly greater than the total yield of the state (52,000,000 bushels against 34,000,000 aggregate yield). And this is true of the different lines of a single company as well as of the different lines of the whole state. There is no road that has all the counties on it to itself, but, of course, each draws traffic from all the counties on its line, and their aggregate yield in different years is a pretty close guide to the probable fluctuations of traffic of the line, so far as it is affected by wheat—the only crop of Minnesota which is largely exported.

We see from the above list that only on two lines, the Northern Pacific and the St. Paul-Pembina line of the St. Paul, Minneapolis & Manitoba, has there been any increase of wheat production in Minnesota this year over last, and on these the increase has been but trifling. Further, we see that there was a much larger wheat production both this year and last on the Winona & St. Peter road (Chicago & Northwestern) than on any other in Minnesota, and that next to this stands the short River Division of the Chicago, Milwaukee & St. Paul—only six counties, all bordering on the Mississippi. Indeed, we will simplify our understanding of wheat culture in Minnesota if we will note at once what different districts of the state produce. Now 15 counties that form the southeast corner of the state, whose eastern boundary is the Mississippi and whose western is approximately a north-and-south line from the Mississippi about 25 miles above Minneapolis south 120 miles to the Iowa line 120 miles west of the Mississippi—a right-angled triangle with base and side 120 miles, and the Mississippi forming the hypotenuse, containing only 7,200 square miles, or not one twelfth of the area of the state—these 15 counties produced 15,500,000 bushels of the state's total production of 33,800,000 this year, or 46 per cent. of the whole; and last year they produced 17,000,000 bushels out of the total of 39,800,000 bushels, or 42½ per cent. of the whole—thus completely overshadowing the southwestern counties and the Red River valley, to which emigration has been large of late years, and which have been most talked about. But if we add eight counties to the west of the above described triangle, making a belt from 30 to 40 miles wide, but extending not more than 50 miles west of Minneapolis on the north and 150 west of the Mississippi on the Iowa line, we have in a southeastern group of 23 counties a production of 19,555,000 bushels, or 58 per cent. of the state's total this year; against 23,390,000 bushels, or 60 per cent., of the total last year. These 23 counties may be counted the "old" part of the state. They do not include half the area from the Mississippi to the Dakota line, the belt west of them being about 100 miles wide both at the north and the south, and containing about 13,200 square miles, against 12,200 in the 23 counties to the east.

But this southwestern territory is divided into two quite different districts. South of the Minnesota River, which here runs from Big Stone Lake southeast, is most of it in thirteen counties, in which are the recent extensions of the Winona & St. Peter, the St. Paul & Sioux City (now Chicago, St. Paul, Minneapolis & Omaha), and the Southern Minnesota—a very large mileage of new lines, some of which are altogether too close together. This is apparently a fine, fertile prairie country, easily brought under cultivation, and at least three railroads have large land grants there. But it has been subject to a series of disasters which have checked immigration at different times. First, in 1872, and thereafter, was the plague of locusts. There was then but little railroad there, and very little population. Immigration was arrested until about 1877, after which there was a great deal of railroad building and considerable influx of population, taking up the free government lands. Last year the wheat crop was generally but a tolerable one, averaging 12.4 bushels to the acre, against 13.3 for the whole state. But this year the terrible winter greatly hindered farming operations, and made wheat sowing late (some railroads here were not free from snow blockades until May), and the weather being unfavorable, the late sown wheat has turned out very badly. The production, acreage and average yield of the 13 counties have been:

13 s. w. Minn. counties:	1881.	1880.	Decrease.
Acreage.....	295,817	318,481	22,664
Production, bu.....	2,026,335	3,966,835	1,940,500
Yield per acre, bu.....	6.85	12.40	5.55

Thus this large quarter of the state, which should be growing rapidly, sowed a little less wheat than last year, and harvested little more than half as much, the average yield being less than 7 bushels per acre. This is a very serious matter for the wheat-growers, but for the railroads it is less important for its effect on this year's traffic than for its probable effect on immigration; because the total production of this section has never yet been large, and would not be with a large

yield per acre until more land has been brought under cultivation. Even last year the product of the 13 counties was less than that of the two Mississippi River counties south of St. Paul; this year it is less than that of one of them. The two northerly counties of this group of 13, Lac qui Parle and Yellow Medicine, perhaps should not be included with it; both have an increase in acreage this year, and their average yield is above the average of the group (10 and 8 bushels per acre respectively); but if we subtract these, the misfortune of the other 11 counties will appear all the greater, the reduction in their acreage being 37,534 instead of 22,664, and their average yield per acre this year 6.15 instead of 6.85 bushels. These two counties, too, are served by the Hastings & Dakota road, which runs close to their northern border, as well as by the Winona & St. Peter, which runs through their southwestern corners only.

As further illustration of the light traffic yielded by these southwestern counties, we may adduce the fact that of the nine counties in the southern tier, nearly all of which are crossed by the Southern Minnesota, which in the aggregate produced 4,267,000 bushels this year, the four western ones produced but 296,500 bushels, about one-fourteenth of the whole; while the single county of Faribault, which is next east of the most easterly of them, produced 456,000 bushels.

A third group of Minnesota wheat-producing counties is that north of the district just described, but south and east of the Red River valley, chiefly on the lines of the Hastings & Dakota, the St. Paul, Minneapolis & Manitoba, and the Northern Pacific—a more wooded country than the other wheat-producing districts, and one of the largest, but all comparatively new and thinly peopled. Its progress in production is pretty well shown by the statements in the first table for the railroad lines named. There is on the whole a considerable decrease, which has been largest in the southern part, on the Hastings & Dakota, but also considerable on the St. Paul-Breckenridge line. In this group, a little further north, are the counties which this year have the best yield per acre, being those just east of the Red River counties. It is here and in the Red River valley that there has been the increase of acreage that has made up for the decrease in the southeastern and southwestern counties. Four Red River counties show an increase of 35 per cent. in acreage (= 35,000 acres), and eight of the adjacent group on the east and south, an increase of nearly 20 per cent. (46,000 acres).

The Red River valley does not make as good a showing as usual, but it must be remembered that only a little of this valley is in Minnesota. Three counties along the river (extending 150 miles north and south) increased their acreage from 101,450 to 136,293, but their production increased only from 1,660,000 to 1,713,000 bushels, there being a decrease in their average yield per acre from 16½ to 12½ bushels. All these Red River counties are on the Pembina line of the Manitoba road; only one of them on the Northern Pacific; but both roads have a large mileage in wheat country across the Red River in Dakota. It should be said that farming operations were less delayed in this northern country last spring than in the southwestern counties. In the latter, as in the former, there doubtless would have been a considerable increase had the weather permitted, as there had been a large growth of population the previous year.

Where there has been a decrease in wheat acreage in the state, we may assume that there has been an increase in other crops, as no land broken up was likely to remain fallow. The reduced yield makes the average crop of the state a light one, but this is by no means a novel experience for Minnesota. We have been accustomed to look upon Minnesota as a great wheat state; but this is because it does not produce much else, and not because it has, on the average, unusually large yields. The large yields are the exception and not the rule there, as in most other states. The average yield per acre for nine successive years has been, as reported by the Agricultural Department:

Year.	Bush. per acre.	Year.	Bush. per acre.
1873.....	18.3	1878.....	12.0
1874.....	13.4	1879.....	12.3
1875.....	17.0	1880.....	13.3
1876.....	8.5	1881.....	11.4
1877.....	18.5		

For the nine years the average yield has been but 13.8 bushels per acre; in the last four, 12¼ bushels. It has been common to all parts of the United States, nearly, for the average yield of wheat to fall off after the new country has been cultivated a few years. This has been the experience of the older part of Minnesota. The river country produced large crops for several successive years. They still, as we have seen, produce large quantities of wheat, but last year only one of them produced as much as 15 bushels per acre, and this year the maximum of any of them is 14 bushels.

Wheat-growing is doubtless still a profitable industry in them, especially as they have the advantage over the inland counties in the cost of transportation, but they are no longer exceptional for their yield. The production per acre in Illinois, Indiana, Ohio and Michigan was much larger than in them last year, and for four years had doubtless averaged more; though for years previously it had been less. Still, though Minnesota does not and probably will not have any peculiar importance as regards the aggregate wheat crops, the wheat crops will doubtless continue to be of peculiar importance to Minnesota and Minnesota railroads, for wheat is and seems likely to remain its one great crop.

ATLANTIC GRAIN RECEIPTS.

We reviewed the distribution of grain receipts at the seven Atlantic ports for the seven months ending with July in our issue of Aug. 19. We have now only to chronicle the changes caused by the August movement, which this year has been affected as it was not last year by, first, the very low rail rates, which have greatly reduced the canal movement, and, secondly, by the smaller supply of grain in the Ohio valley, which last year was immense and greatly swelled the receipts of Philadelphia and Baltimore. The low rail rates and the consequent lighter canal movement have worked against New York; but the light supply and shipments from the Ohio valley and its latitude further west have worked still more effectively against Philadelphia and Baltimore. Thus the August receipts of the several ports were as follows, in bushels, this year and last:

Atlantic Grain Receipts in August.				
	1881.	1880.	Decrease.	P. c.
New York.....	10,878,198	13,456,288	2,578,090	19.3
Boston.....	1,008,027	2,028,037	1,020,010	39.0
Portland.....	49,475	204,100	154,625	76.0
Montreal.....	1,526,197	3,725,371	2,199,174	59.0
Philadelphia.....	2,644,887	3,748,700	1,103,813	29.4
Baltimore.....	4,782,555	6,543,300	1,760,745	27.0
New Orleans.....	774,062	1,110,522	344,860	38.0
Total.....	22,262,901	31,425,378	9,162,477	29.2

Proportionally, New York has lost less than any other place, and its percentage of the whole rose from 42.8 in August last year to 48.8 this year. Philadelphia having precisely the same percentage, and Baltimore a very little advance (20.8 to 21.5 per cent. of the whole), all the other places losing, but Montreal more than all the rest. The failure to open the enlarged Welland Canal, or something else, seems to have nearly destroyed the Montreal business. It had a similar decrease in July also.

For the eight months ending with August the receipts of the seven Atlantic ports have been, for four years:

	1878.	1879.	1880.	1881.
New York.....	73,533,640	76,222,297	88,815,671	74,023,898
Boston.....	12,590,954	13,454,061	15,881,138	14,885,702
Portland.....	1,500,754	1,032,879	1,923,940	1,248,092
Montreal.....	7,681,718	7,518,110	10,528,019	7,006,080
Philadelphia.....	25,440,810	32,202,800	31,571,435	17,550,442
Baltimore.....	20,300,900	37,053,730	35,805,741	28,556,125
New Orleans.....	8,334,702	8,130,812	13,566,922	14,357,835
Total.....	155,440,508	175,593,689	198,150,866	157,028,234

The aggregate this year is 20 per cent. less than last, 10 per cent. less than in 1879 and about the same as in 1878, which was our first full year of very large grain receipts, though receipts in 1877, after harvest, were also large. New York's receipts are much less than last year, but about the same as in the other two years. Philadelphia's are much smaller than in any other of the four years. Baltimore's much smaller than in 1880 and 1879. New Orleans' a little larger than last year and larger than ever before.

Comparing with last year, there has been an aggregate decrease of 40,500,000 bushels, and New York has lost 14,800,000, Philadelphia 14,000,000, Baltimore 7,300,000, Montreal 3,500,000, and Boston 1,000,000; while New Orleans alone has made a gain, but amounting to only 800,000 bushels, very nearly balanced by the loss of 700,000 at Portland.

The rate of decrease was much greater in August than for the eight months (29 per cent. against 20), but it was much greater in July than in August (41 per cent. against 29). The chief part of the decrease, indeed, has been in the two mid-summer months of July and August. In the six months ending with June the aggregate decrease had been but 6,500,000 bushels; in the two months following it was no less than 26,600,000, or four times as much. This doubtless is largely due to the lighter winter wheat crops this year, but partly, we believe, to speculation at Western markets, which has made prices there comparatively higher than at the seaboard or in Europe. At least, as we have shown in another article, the receipts of the great Northwestern markets have suffered but little decrease (8,300,000 bushels) in these two months, while the Atlantic receipts fell off 26,600,000 bushels. This would be conclusive but for the fact that heretofore there have been vast shipments to the seaboard from a country which does not

send by way of the Northwestern markets, and that it is precisely this country which had very poor crops this year. If, however, there has been no accumulation in the West because of speculation, and the decrease in Atlantic receipts has been wholly due to the smaller production, then the reduction of the grain movement during the current crop year will be much greater than has been expected. The decrease for the two months was no less than 56 per cent., and this applied to the Atlantic receipts for the whole crop year would amount to 187,000,000 bushels. It will not, however, be anything like as great, though it must be said that there have been incitements to a free movement this year which did not exist last year, in the much higher prices of grain and the much lower rates of transportation. But last year the midsummer movement was extraordinary. The crop ripened much earlier than this year and was exceptionally large; the demand was brisk and the prices, though lower than this year, were as high as or higher than the farmers expected to get later in the year. The truth, we suspect, is that the summer receipts of the Northwestern markets this year have been abnormally large, but the receipts of the Atlantic ports not so, or not so much so. The indications are that the high prices are causing the farmers to market their grain unusually early, and that this has been giving an exceptionally heavy traffic to the Northwestern roads for some weeks past, but only for a little while to the lines to the east; if the prices continue we may expect to have great activity in grain-carrying on all the lines for some time yet; but if so it must inevitably be followed by an unusually light traffic—in the late fall and winter, or in the winter and spring; because it will not take long at the present rate of Northwestern receipts for the farmers to market all their surplus small grains and what they can spare of last year's corn crop. If, however, prices of grain should fall, they will hold it longer and ship more of it later.

The percentage of the total grain received at each port during the eight months in each of the last six years has been:

	1876.	1877.	1878.	1879.	1880.	1881.
New York.....	40.3	41.4	47.3	43.4	44.8	47.0
Boston.....	8.7	9.4	8.1	7.7	8.0	9.4
Portland.....	1.6	0.9	0.9	0.6	1.0	0.8
Montreal.....	7.7	6.3	4.9	4.3	5.5	4.4
Philadelphia.....	20.2	13.9	16.4	18.3	13.9	11.2
Baltimore.....	18.5	21.9	17.0	21.1	17.1	18.1
New Orleans.....	4.0	6.2	5.4	4.6	6.9	9.1
Total.....	100.0	100.0	100.0	100.0	100.0	100.0

New York's proportion has been larger this year than in any other except 1878; Philadelphia's is much smaller this year than in any other of the six; Baltimore's exactly the same as last year, and larger than in 1878, but smaller than in the other three years. New Orleans a considerably larger percentage than in any other year.

Comparing New York with Philadelphia and Baltimore together, their percentages have been:

	1876.	1877.	1878.	1879.	1880.	1881.
New York.....	40.3	41.4	47.3	43.4	44.8	47.0
Phila. and Balt.....	38.7	35.8	33.4	39.4	34.0	29.3
The three.....	79.0	77.2	80.7	82.8	78.8	76.3

The latter two thus have a much smaller proportion this year than in any other, due chiefly to the falling off at Philadelphia.

Taking New York and Boston together, and comparing with Philadelphia and Baltimore, the percentages are as follows:

	1876.	1877.	1878.	1879.	1880.	1881.
New York and Boston.....	48.0	50.8	55.4	51.1	52.8	56.4
Phila. and Balt.....	38.7	35.8	33.4	39.4	34.0	29.3
The four.....	86.7	86.6	88.8	90.5	86.8	85.7

Thus the two northern cities this year have received a larger proportion of the whole than in any previous year, and nearly twice as much as the two southern ones, while last year they received only about one-half more. It is noticeable that in spite of the large growth of the grain traffic at New Orleans, these four Eastern ports have suffered but a small decrease in their percentage of the total receipts. This is due this year largely or chiefly to the great falling off in Montreal receipts.

WHERE WILL A RAILROAD PAY?

We have received from a gentleman whom we happen to know, and who is an unusually intelligent and trustworthy person—a farmer in the valley of which he speaks—the following inquiry:

"I will give you the conditions of a problem on which I should like your editorial opinion. In a Western state a valley from half a mile to a mile in width runs north and south between two of the great trunk lines of railroad leading from the seaboard to the West. Land in this valley is very fertile and valued at \$100 to \$150 per acre; the uplands adjoining are comparatively sterile, adapted chiefly to stock and wheat, valued at about \$20 per acre. The city at the upper end of the valley has a population of about 20,000; is enterprising and growing. That at the south end has about 8,000; is conservative and grows very slowly. The trade on the river barely suffices to support two steamers, one

each way daily. There is coal enough in the valley to supply it, but none is shipped out of it. A railroad is projected in this valley. It would be purely a local road. The advocates of it admit frankly that probably not 10 per cent. of the construction debt would ever be paid. In other words, in asking farmers, merchants and manufacturers along the line for subscriptions and donations, they virtually admit that both classes of aid will eventually be reducible to one, to wit: donations. Has such a railroad any reason for being?

"I should have stated that, one year with another, the boats are unable to run about six weeks out of each year."

Our correspondent does not give data enough to enable one to come to a conclusion as to the need of the proposed railroad. To that end we should have a "traffic survey," which not only should give a quantitative and qualitative analysis of the resources of the district which the proposed railroad would serve, and the bounds of that district, but the amount of transportation now required and its cost, and especially whether any additional production could be developed by cheaper or quicker transportation, and the probable amount. It will be seen, therefore, that it is no light task to determine whether a railroad would be an advantage to a district or not, even if we knew that district pretty well. Each of its chief industries needs to be studied by itself, and with relation to the other industries of the same kind in the country.

For instance, what does the valley now ship? We will say wheat, cattle and wool. What does it cost now to have this freight carried? How much cheaper is it likely to be carried by rail? If these facts are ascertained, it will be comparatively easy to ascertain the increase in income which each farmer may expect from the improved transportation. And to compute this it will be necessary to know the route of the road, unless it will be everywhere nearly identical with that of the river. For a railroad which might be a general benefit to the valley might lessen the value of some of the farms. For, in all probability, if the railroad is built, the steamboats will be withdrawn; and a farm which had a steamboat landing opposite its barns may not have a railroad station within five miles, requiring longer hauls of its produce. Let us say that a farm markets on an average 1,000 bushels of wheat, a carload of cattle or sheep, and 2,000 lbs. of wool yearly. The lower cost of getting this to market will measure the chief annual value of the railroad to that farm so far as increasing its income is concerned. If coal is burned and fencing and other lumber are imported, the reduction in the freights on these will lessen the yearly expenses. Freights on merchandise and other small supplies are not important enough in a farming country to affect the question much either way, unless existing railroads are very distant and the steamboat freights extraordinarily high.

There are, however, other advantages to the farmer which, though not felt in his income, may make a difference in his comfort and in the consequent selling price of his land. Frequent, rapid and certain communication is one of these. It makes life pleasanter, and is a luxury which people are willing to pay something for. If this valley had no steam communication, it would probably be willing to pay a good deal for it. But here it is a question *how much more* railroad transportation is worth than steamboat transportation, interrupted on an average six weeks every year—sometimes, we presume, much longer.

The value of such advantages cannot be computed, but the price people are willing to pay for it may be ascertained approximately by comparing the market value of farms in this valley with that of similar farms in the same part of the country which have railroad instead of river transportation. If the farms in the valley are already worth \$100 to \$150 an acre, we think it will be hard to raise their price by means of a railroad.

Again, it will be necessary to inquire what industries other than farming may be promoted by a railroad. It often happens that there is a very great development of mining or manufacturing on a railroad which had not been anticipated. Our correspondent mentions coal, and says that enough is produced to supply the valley, but none is shipped out of it. Now, if the quality and cheapness of mining this coal are such as to enable it to compete with the coal used on the lines with which the proposed railroad would connect, then there might be an immense development of this mining, such as is hardly possible unless the vehicle (whether car or barge) in which the coal is originally loaded can pass uninterruptedly over an extensive system of roads or navigable waters. Evidently, a special knowledge of the local coal mines and of the coal business is needed to settle this question. One thing, however, is altogether probable. If the coal is now confined to the valley, consumption because of the cost of transportation, cheaper transportation will probably profit the coal owners only, and not the farmers, who will then pay

what the rest of the world (in that vicinity) pays for coal. And the cheapness of transportation, on the other hand, may let foreign coal in and destroy the local coal industry by supplying fuel cheaper than the local coal can be mined, in which case the coal-owner will lose by the railroad and the local consumers will gain in the article of coal.

The exact location of the line will have much to do with the possible development of mines and quarries (if there are any), because a very little cartage of coal, ore or stone adds very greatly to its cost. Developments of such natural resources as these, however, profit the owners of the mines and quarries chiefly and the farmers but little.

It is somewhat different with manufactures, because these generally create towns, somewhat improve the market for small farm products (butter, chickens, etc.), and add an attraction to farm life—a luxury that people are willing to pay something for, as it will be easy to find by comparing the prices of farms ten miles from a town with those of farms within three miles. It will be found that the additional price which people actually pay for the farms near town is altogether out of proportion to the pecuniary advantage in the saving of cartage to market.

Now, whether manufactures are likely to be started on a new railroad depends on special circumstances. They are very unlikely to be established, however, where there is no railroad.

We understand that the question in this case is entirely whether the advantage to the country on the line is likely to justify the inhabitants in building the road or in paying the most of its cost, not at all whether the road will yield a fair interest on the capital invested. There are, doubtless, hundreds of cases in which the land-owners along a railroad have had the aggregate value of their property increased by an amount several times the whole cost of the road, while the latter has yielded no return on the money invested in it. Indeed, a comparatively light tax on the land which a railroad secures will usually pay its whole cost. Suppose one to carry the traffic of a belt eight miles on each side of it; two dollars an acre on this land would be \$20,480 per mile of road. The ordinary railroad promoter would at once say that a saving of two cents a bushel in the freight on wheat at 25 bushels to the acre would pay 25 per cent. on such a tax; but the land-owner will probably bear in mind that even in the most fertile districts but a small fraction of the whole surface is usually sown to wheat; that wheat usually yields less than 25 bushels to the acre, and that part of this is not marketed but kept for seed and home consumption; that the weight of an acre's produce of almost all other farm produce, and the freight on it, is much less than on wheat, and on stock is very much less. If he is wise he will do what we mentioned above: calculate the amount of freight which is actually paid now on his farm's average produce marketed, which he probably does not pay directly, because of selling to local dealers, and then find as nearly as possible what can be saved out of that. If he finds that his present freight bills (to the point where the existing railroad system is reached) are less than 25 cents an acre for his whole farm, though it is 75 cents for his wheat, he will hardly be convinced that a railroad will save him 50 cents an acre.

We have hardly more than touched upon the investigations required to enable one to judge how much advantage a community may draw from a proposed railroad; but we hope we have said enough to make it plain that this is a question which cannot be answered off hand, or without very thorough study of the facts in each case. In most cases of railroad construction it has not been necessary to answer this question, because the community to be benefited by the road has not been asked to pay for its cost, or has been asked to pay for only a small part of it. But in this case the community is asked, substantially, to build the road for its own use, and it needs to know whether the road will be worth to it what it costs, just as much as a farmer needs to know whether a new barn or reaping machine will be worth to him what it costs.

If our correspondent, with his local knowledge, would make a study of this case, and especially if he would investigate the actual effect of new roads on similar districts—that is, would find how much more land has risen in places like his valley, and formerly about equally well served with transportation, equally distant from railroads, etc., than land on this proposed railroad, he would do a work of immense public value. There are tremendous differences in the effects of railroads. In a country wholly destitute of transportation, as were most of Kansas and Nebraska, and the interior of some Western states, nearly the whole value of the land has been given by the railroads. Without them, at least, it could have been used only for grazing. But in a plain country most of the fertile land has been

occupied, that is, within 15 or 20 miles of a railroad or navigable stream. What has been the effect of multiplying railroads in such districts? How much more is the land worth when, from being 15 miles distant from a station, it is brought within eight miles? And especially, what effect does the greater nearness of the station have on farm production? Does the farmer raise less stock and less grain, and if so within what distance does the lessened distance of the station cease to operate in changing the staples of production? These are questions worth months of investigation, which no one has made a serious study of as yet. The wisdom or unwisdom of the permanent investment of hundreds of millions of capital depends on the answers to them. Such partial inquiries as have been made are generally misleading. An estimate of the increase of value of the land after a railroad was built may make an excellent showing for the enterprise, when further investigation might show that there had been a similar increase in the value of lands which had no change in their facilities for transportation. On the other hand, about 1876 or 1877 it would probably have been found that farms in Illinois near the stations on the numerous new railroads built in that state shortly before 1873 were worth considerably less than before these roads were built, though then they were 15 miles from a station and afterward were but five. Here would have been a fine chance to show the deadly effect of railroads on farm property, but it would have been spoiled when further investigation showed that there was everywhere a great falling off in the market price of Illinois farm lands.

And such investigations as are needed in the case our correspondent calls up are likely to be required much more hereafter than heretofore, because the country (this side of the Mississippi at least) has become pretty completely supplied with lines that can draw much support from through traffic, or can count on a very large local traffic from the beginning. Heretofore even the railroad that has been profitable to its proprietors has made at least five dollars for the land-owners for every dollar it has made for the railroad-owners. Yet, so long as a good return can be got on the cost of the roads, the land-owners will get their profit without paying for it. But that time is passing, and for many parts of the country has passed; and the land-owner, if he would increase the value of his land by a railroad, will have to pay at least a part of the cost. This is the case now in the chief countries of the continent of Europe, where local roads are being built largely at the public cost—towns and districts as well as general governments contributing. The value conferred by these roads is realized almost entirely by the land-owner. He will be very unlikely to contribute, either directly or by voting a tax, unless he can be shown pretty definitely how much good it is going to do him.

WESTERN GRAIN RECEIPTS.

There have been some peculiar features in the mid-summer movement of grain which makes us refer to it earlier than we otherwise would. The receipts of the Northwestern markets have kept up better than seemed possible, considering the light wheat harvest, but the receipts of the Atlantic ports have fallen off enormously, compared with last year. Taking the whole year from Jan. 1 to Aug. 27, the grain movement shows a somewhat similar course, but by far the larger part of the decrease in Atlantic receipts for the eight months occurred during July and August, when the decrease at Northwestern markets was comparatively not great. The receipts and shipments of the eight reporting Northwestern markets (St. Louis, Peoria, Chicago, Milwaukee, Duluth, Detroit, Toledo and Cleveland), and the receipts of the seven Atlantic ports for the eight months have been, in bushels, for four years:

Year.	Northwestern receipts.	Northwestern shipments.	Atlantic receipts.
1878.....	143,721,249	114,979,819	155,560,921
1879.....	143,683,918	125,723,569	176,294,971
1880.....	177,806,099	154,906,283	198,102,164
1881.....	100,031,757	137,400,611	159,133,780

We see here that while the receipts of the Northwestern markets in comparison with last year have fallen off 17,800,000 bushels (10 per cent.) and their shipments 17,500,000, the receipts of the Atlantic ports have fallen off no less than 39,000,000 bushels, or nearly 20 per cent.

The decrease in Atlantic receipts has been 21,500,000 bushels greater than the decrease in the shipments of the Northwestern markets.

But when we reviewed the grain movement for the five months ending with May, the decrease in Northwestern receipts was greater than it is now, while the decrease in Atlantic receipts was but 10,700,000 bushels, instead of 39,000,000 bushels, as it is three months later. These great changes in opposite directions, in

the three summer months, deserve our attention. The following statement of the movement in these three months for four years will enable us to study them.

Grain Movement June, July and August.

Year.	Northwestern receipts.	Northwestern shipments.	Atlantic receipts.
1878.....	65,608,725	52,794,429	66,382,747
1879.....	70,439,049	68,393,851	85,445,796
1880.....	86,488,437	85,422,182	107,268,816
1881.....	87,334,039	74,151,547	78,989,625

Thus we see a marked change this year from any of the three previous summers. In all but this summer the Atlantic receipts have been greater than the Northwestern receipts; last year they were 22,000,000 bushels greater; but this year they are 8,000,000 bushels less. And while there has been this year a slight increase in the Northwestern receipts over last year, there has been a decrease of 11,000,000 bushels in the Northwestern shipments and of no less than 28,000,000 bushels (26 per cent.) in the Atlantic receipts.

The only explanation is that the shipments from Western interior points not marketed at or passing through one of the Northwestern grain markets have been exceptionally small this year, and have been quite insignificant during the past summer. This is due probably to the fact that the country which has hitherto made most of these shipments, especially in summer, which is the winter wheat and corn country between Pittsburgh and the Mississippi south of the lakes, has had very little grain to market this summer. Its wheat was mostly shipped by spring, and its corn is mostly needed for home consumption. Not for many years has so large a proportion of the grain arriving at Atlantic ports come from the great Northwestern grain markets, at the head of which stand Chicago, St. Louis, Toledo and Peoria, which receive more than seven-eighths of the aggregate receipts of the eight Northwestern markets.

The receipts of each of these markets for the eight months and also for July and August have been this year and last, in bushels:

	—Eight months—	—July and August—
	1881.	1880.
Chicago.....	75,805,130	84,314,957
Milwaukee.....	10,324,352	8,891,148
Toledo.....	16,769,506	24,151,395
Detroit.....	4,819,678	4,925,839
Cleveland.....	3,083,713	4,001,101
St. Louis.....	28,735,745	31,795,667
Peoria.....	17,061,455	16,240,455
Duluth.....	315,923	1,886,709
Total.....	157,535,592	176,007,271

While for the eight months there has been a decrease of 18,500,000 bushels, Peoria has gained 1,400,000 and Milwaukee also 1,400,000 bushels; while Chicago has lost 8,500,000, Toledo 7,400,000, and St. Louis 3,000,000 bushels. But for the two months of July and August, when the total decrease was 8,300,000 bushels, it was nearly all suffered by Toledo and St. Louis, the former losing 4,750,000 bushels and the latter 2,580,000, while Chicago lost but 800,000, and there was a gain of 880,000 at Milwaukee.

The relative positions of the several places in both years will be shown by the following table of the percentages of the total received by each in the eight months ending with August, in the two months then ending, and in August alone, the latter being given by itself to show the course of receipts since the new winter wheat began to come forward:

	—8 months—	—July and Aug—	—August—
	1881.	1880.	1881.
Chicago.....	48.1	47.9	57.6
Milwaukee.....	6.6	5.1	4.4
Toledo.....	10.6	13.7	16.7
Detroit.....	3.0	2.8	2.3
Cleveland.....	2.0	2.3	1.8
St. Louis.....	18.3	18.0	14.7
Peoria.....	11.2	9.2	9.0
Duluth.....	0.2	1.0	0.6
Total.....	100.0	100.0	100.0

For the eight months Chicago is almost stationary, having made up since navigation opened for a great loss during the winter. The chief changes are a loss of 3.1 per cent. by Toledo, and gains of 2 per cent. by Peoria and 1.5 per cent. by Milwaukee.

For the two months Chicago has made an important gain over last year, and Milwaukee has nearly doubled its percentage, so that these two Lake Michigan cities have received 62 per cent. of the whole during July and August this year, against 53.1 last year.

The loss of Toledo is nearly equal to the gain of Chicago for the two months, and is much greater than for the six months previous, and this is a further indication that the winter wheat and corn country south of the lakes, of which we have spoken, has been unusually bare of grain this summer, as its receipts are chiefly from this district. St. Louis has also lost position in the two months, though it had gained a little in the previous six months, the reason for which is apparent: the low rail rates have greatly reduced shipments by the Mississippi River. For August the proportions have varied from last year's very nearly as in July and August, except that St. Louis shows a gain instead of a loss, balanced by a reduction in the amount of gain

at Chicago. Duluth has made scarcely any figure as a grain receiver this year, and it is possible that the reports for it are incomplete. Chicago has sometimes received three times as much in one day as is credited to Duluth for the last eight months.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Texas-Mexican.—Extended from Aguilares, Tex., westward to Laredo, 30 miles. Gauge, 3 ft.

Sabine & East Texas.—Extended from Pine Island Bayou, Tex., northwest to Kountze, 19 miles.

Oregon Railway & Navigation Co.—A branch has been completed from Bolles Junction, Wash. Ter., east to Dayton, 13 miles.

Louisville & Nashville.—The *Pensacola & Selma Division* is extended northward to Repton, Ala., 14 miles. Gauge, 5 ft.

Florida Southern.—Completed from Palatka, Fla., west to Gainesville, 49 miles. Gauge, 3 ft.

Bradford, Eldred & Cuba.—Track laid from Eldred, N. Y., north to Ceres, 9 miles. Gauge, 3 ft.

Mobile & Ohio.—Track is laid on the *Cairo Extension* from Columbus, Ky., north 19 miles. Gauge, 5 ft.

Cincinnati Northern.—Extended from Norwood, O., south to Cincinnati, 5½ miles, and from Lebanon, O., north by east to Utica, 6½ miles. Gauge, 3 ft.

St. Louis, Iron Mountain & Southern.—Track is laid on the *Louisiana Branch* from Gurdón, Ark., southeast to the Little Missouri River, 10 miles.

St. Louis, Des Moines & Northern.—Track laid from Des Moines, Ia., west to Wauke, 15 miles. Gauge, 3 ft.

Chicago & Northwestern.—Track laid on the *Milwaukee & Madison Division* from Milwaukee, Wis., west to Waukesha, 20 miles. The *Toledo & Northwestern Division* is extended northward to Algona, 93 miles.

Gulf, Colorado & Santa Fe.—The *Ft. Worth Branch* is extended northward to Brazos Crossing, Tex., 19 miles.

New York, Lake Erie & Western.—The *Bergen County Short Line* is completed by laying track from the Midland Crossing northward to Ridgewood, N. J., 5 miles.

Louisville, New Albany & Chicago.—Track has been laid on the *Chicago & Indianapolis Division* from Dyer, Ind., to Rensselaer, 26 miles.

St. Paul, Minneapolis & Manitoba.—A branch is completed from Wayzata, Minn., to Upper Lake Minnetonka, 6 miles.

This is a total of 299 miles of new railroad, making 4,018 miles this year, against 3,196 miles reported at the corresponding time in 1880, 1,798 miles in 1879, 1,160 miles in 1878, 1,176 miles in 1877, 1,487 miles in 1876, 702 miles in 1875, 1,006 miles in 1874, 2,455 miles in 1873, and 4,498 miles in 1872. This year's construction has nearly reached the great mileage of 1872.

THE COMMISSIONS ON EMIGRANT TICKETS have been a standard grievance of the Western railroads for many years, and this in part was the occasion of the organization of the Western Trunk Lines Passenger Association, of which Mr. Henry W. Gwinner was the first and Mr. W. H. Dixon is the present Commissioner. The commission to which these roads object to is one of 25 per cent. on the price of tickets, charged, not by the individual selling agent, but by the Eastern trunk lines, as compensation for sundry asserted expenses. It is, we believe, about two years since the Western companies began to agitate the subject, and they complain that it is only now, after making preparations to adopt extreme measures, which would have been embarrassing to all parties concerned—the Western as well as the Eastern roads and the traveling public also—that they have been able to secure any attention to their demands. We publish this week the letter of Mr. G. R. Blanchard, Vice-President of the Erie, protesting against the action of the Western lines, which makes the most possible out of what seems to us a very bad case. We confess to very imperfect information on the subject, but with what we have we must say that the Eastern lines seem to us to have no case at all. The Western roads are certainly entitled to say on what terms they will carry emigrants as well as other passengers; and if they refuse to pay the Eastern roads for working for them, they have a right to do that too, and the Eastern roads need do no more work for them. The fact is, they can not help working for them. The emigrant's destination is on the Western road, and this is the local line which he must travel over, having the choice of half a dozen routes to get to it. This is substantially true of the roads from Chicago and St. Louis to Missouri River points and to St. Paul if they combine. They, as a whole, must be used by the emigrant in order to reach his destination, which in the great majority of cases is substantially fixed before he sees a ticket agent. Why should these roads pay for having the people sent over them who must go over them in any event? As for protection and care, each road owes that to the emigrants as soon as it receives them from the previous carrier and until it delivers them to the following one or at destination, and should pay the whole expense of it; and when each has paid the expense on its own line it will all be paid, and in exactly the proportions in which it is due. If foreign agencies were required to attract immigration, the Western roads should indeed pay the larger part of their cost. But the foreign agencies do not cause the immigration but the immigration causes the foreign agencies. There is reason for paying some one to induce intending emigrants to go by one steamship line rather than another, and, if the business is not pooled, by one competing line rather than another; but as soon as we get beyond the competing

route, whether by reaching the local line which alone will bring the emigrant to his destination, on to parallel lines which divide the business, or for any other reason decline to compete, there is no reason in it, that we are able to see. But, as we have said, we confess to a very imperfect acquaintance with the subject, and can only say that brief examination of a little of the evidence for the defendant inclines us to decide for the plaintiff.

CHICAGO RAIL SHIPMENTS EASTWARD, which for the week ending Aug. 27 were reported by the Chicago Board of Trade as 52,473 tons, were actually in the aggregate 63,831 tons. For the following week ending Sept. 3 the Board of Trade reports aggregate rail shipments amounting to 53,948 tons, of which 38,701 tons were grain, 8,396 flour, and the balance provisions. Its records show that 11.2 per cent. of this freight went by the Chicago & Grand Trunk, 25.3 by the Michigan Central, 27.1 by the Lake Shore, 16.2 by the Fort Wayne, 12.4 by the Pan-handle, and 7.8 by the Baltimore & Ohio, which will probably be altered by the full report showing the shipments by these roads from points beyond Chicago. As the above stands the two Vanderbilt roads have 52.4 per cent., instead of their pool percentage of 49, and the two Pennsylvania roads 28.6, instead of the 33 which belongs to them under the pool. We understand that the current rate now is 12½ cents per 100 lbs. from Chicago to New York. Enormous receipts at Chicago have at last stimulated shipments, and the lake vessels, as well as railroads, are all busy, and the former at remunerative rates. The Chicago rail shipments of the weeks ending Aug. 27 and Sept. 3, last year, were 40,861 and 39,051 tons, respectively, so that this year there has been an increase of nearly 60 per cent. The total east-bound traffic over the trunk lines, however, shows no such increase; indeed, of late, in spite of the low rates, it is very little larger than at this time last year. From the interior points south of the latitude of Chicago the shipments either are no greater or they are less than last year, for the reason that there is less to ship, and even high prices of produce and low rates of transportation cannot create grain and provisions, though they draw them out rapidly where there are any.

A GRAIN BLOCKADE AT BALTIMORE has caused the Baltimore Elevator, which receives the grain delivered by the Northern Central Railway from the Pennsylvania system, to increase its rates for storage for grain held more than a few days. The elevators are full, the prices are so high that exports are very light, and the side tracks for thirty or forty miles out of the city are filled with cars loaded with grain waiting for a chance to unload and return. That is, the whole machinery of a great railroad system for an important part of its traffic is brought to a stand because prices in Baltimore are higher, proportionally, than in Europe, where this grain will eventually go. The grain merchants in Baltimore are said to be indignant at the advance in storage rates. But there are only two courses possible. Either storage must be raised so as to force grain from the elevator or receipts must cease absolutely so long as holders wish to keep their grain. This is one of the artificial blockades always liable to occur, and especially so when there is a "corner" in the market; and it is more common for the supply of cars than for that of storage to give out. A "corner" forces up the price of corn up to a given day. It sells at 60 delivered in September, but for only 50 for a later delivery. Of course every man who has any corn to sell wants to get it to market before the end of September. The road is offered half of the crop within three weeks, and with equipment sufficient to do a year's work in six months it still cannot nearly carry 26 weeks' business in three weeks. Then there is great complaint; the road is said to be unequal to the traffic it has to carry, and very likely its officers are charged with obstructing traffic in order to help in cornering the market and to profit by the rise.

THE NEW YORK ELEVATED RAILROAD, according to the Receiver's report submitted Sept. 2, earned gross during the 22½ months from Sept. 1, 1879, to July 14, 1881, \$4,939,491, while the working expenses were \$2,901,699, or 59½ per cent. of the earnings. The net earnings were thus \$2,037,792, or at the rate of \$90,569 per month and \$1,086,828 per year, which is \$70,000 per mile of road. The yearly interest on funded debt is \$595,000, leaving a surplus of \$491,828 applicable to the \$6,500,000 of stock, equal to 7.56 per cent., while the Manhattan Company contracted to pay 10 per cent. dividends. The net earnings during the seven months previous to this period were \$91,727 per month, or almost the same as since, though meanwhile the Second Avenue line of the Metropolitan has been opened in the next street from and parallel to the New York Elevated's chief line. The engineer appointed by the Receivers to inspect the structures (Mr. S. H. Shreve), reports them needing some repairs, but on the whole in better condition than when first completed, and giving promise of long life. There had been reports among stock speculators that the roads, or one of them, would have to be rebuilt soon. There really seems nothing to speak of the matter with the roads. Net earnings of \$70,000 a mile a year will pay 7 per cent. on a million dollars; and even if we deduct the large amount of taxes claimed by the city, the profits remain large, though not large enough to pay the rental promised by the Manhattan Company, which includes a proportionate amount on some ten miles of road which has a very light traffic, and cannot have a heavy one until the city has grown a great deal.

THE PROFITS OF THE RAILROAD WAR, according to sundry newspaper statements, are something handsome, this

roads, like the merchant who sold for less than cost, making up for the low prices by their vast business. It is not easy to adduce exact figures to show what the effect has been on gross earnings even, not to say net, because we have no separate statement of earnings from through traffic. But here we have a report from the Chicago & Grand Trunk, whose traffic is mostly through, and which has been peculiarly favored by the railroad war, because it has opened its passenger business this summer with a little lower rate than anybody else. Last summer the Grand Trunk through passengers to and from Chicago were sent almost exclusively over the Michigan Central. This year it has put trains on the Chicago & Grand Trunk, made a \$5 rate between Boston and Chicago, and sold, it is said, about 200 tickets a day at Chicago, and doubtless a great many in the other direction, this through travel being nearly a pure addition to last year's business. Moreover during the war it has had a considerably larger proportion of the freight out of Chicago than last year at the same time. So far as through traffic is concerned, it must be carrying much more than last year. Earnings for the week ending Aug. 20: 1880, \$36,351; 1881, \$39,920; decrease, \$3,431, or 9½ per cent.

CANAL SHIPMENTS continue lighter; compared with last year, very light indeed. For the last week in August the total tons shipped on all the New York canals were 240,220, against 294,955 last year, a decrease of 18½ per cent.; but the decrease in the mileage cleared by boats was 39 per cent., and in tolls 72 per cent. In the main items of freight, the shipments this year and last were, in tons:

	1881.	1880.	Inc. or Dec.	P. c.
Lumber.....	73,759	69,493	I.	4.266
Grain.....	55,140	117,749	D.	61.669
Iron and iron ore.....	22,879	24,385	D.	1.406
Coal.....	52,645	38,241	I.	14.404
Sugar and molasses.....	316	3,366	D.	3.050

The lumber and coal traffic is larger this year, the latter extraordinarily large, and that in spite of a large decrease in the shipments of bituminous, the increase in anthracite having been two-thirds. But the decrease in grain shipments is more than one-half. Last year at this time, however, the grain shipments by canal were extraordinarily large. Shipments of sugar and molasses by the canal have been almost discontinued since the great reduction in west-bound rail rates, the whole amount of these in a week, however, were not last year equal to a day's shipments of through freight out of New York by the trunk lines.

LAKE AND CANAL RATES have fallen during the past week. For Wednesday of last week we chronicled that 4 cents a bushel was paid for corn by lake from Chicago to Buffalo, and 4½ by canal from Buffalo to New York. Since Sunday rates have been half a cent lower both by lake and canal, leaving the through rate about 7½ cents for corn and 8½ for wheat from Chicago or Milwaukee to New York, while the through rail rate is 7 cents for corn and 7½ for wheat.

Ocean rates are also, perhaps, a trifle lower. Recent quotations for grain from New York to Liverpool by steam are 4d. per bushel. Exports are light, but the interior movement is heavy. Apparently, Americans have more faith than Europeans in future high prices. At this time last year the lake and canal rate from Chicago to New York was 10 cents for corn and 11½ for wheat, and 5½d. was the rate from New York to Liverpool. The lake rate was but little higher than now, but the canal rate was 5½ cents on corn, instead of 4.

CHICAGO AND MILWAUKEE GRAIN RECEIPTS were extraordinarily large last August; all the other Western markets show moderate August receipts in comparison with last year. During the four weeks ending Aug. 27 these two places received the equivalent of 20,700,000 bushels of grain and flour this year, against 17,950,000 last year; while the other six Northwestern markets, the chief of which are St. Louis, Peoria and Toledo, received meanwhile but about 10,800,000 bushels this year, against 15,875,000 last. That is, they lost 5,075,000 bushels, while the two Lake Michigan cities gained 2,750,000; and the latter had 66 per cent. of the aggregate Northwestern receipts this year, against 53 per cent. last year. The explanation is, in part, that the other markets, with the exception of Duluth, were receiving in August last year large amounts of winter wheat; while this year there has been a very much smaller quantity, the wheat receipts of the eight Northwestern markets having fallen from 11,000,000 bushels in August last year to 7,200,000 this year.

THE REMOVAL OF THE PRESIDENT FROM WASHINGTON TO LONG BRANCH probably attracted more universal attention, and intense interest than any other railroad journey ever made. The appliances used to provide an easy bed for the sufferer seem to have been of the simplest order, but perfectly successful. Mr. Ely, the Superintendent of Motive Power of the Pennsylvania Railroad, set up a sort of double "buck-board," one to support each end of the President's bed, and it seems to have worked like a charm. That a man so weak that his physicians hesitated to move him from one room to another should be carried with apparently no other injury than that caused by excitement a journey 200 miles by rail, and part of the way 60 miles an hour, is worth chronicling and remembering.

Observations on English Railroads.

MANCHESTER, August, 1881.

The fact which first strikes an American who is specially interested in railroads, on visiting England, is the enormous traffic of the English lines. Most of the terminal, and some of the other stations, are very large, and are nearly always thronged with people and, apparently, there is a constant

succession of trains coming and going without cessation. The yards at junctions and approaches to stations look like an inextricable network of tracks, and the signals, on a forest of posts, seem to be waving their arms by daylight and staring with red eyes at night in hopeless despair over the task of controlling the movement of trains which seems almost uncontrollable.

That the traffic on English lines, for a given length of road, must be very much greater than in the United States, becomes statistically apparent if a comparison is made of the number of locomotives, in proportion to the miles of track worked, of some of the principal companies in the two countries. The following table gives the number of miles of road worked and locomotives owned, and the miles of road per locomotive, for a number of the prominent lines in England and the United States:

ENGLISH LINES.			
Name of road.	Miles of road open.	No. of locomotives.	No. of miles of road per locomotive.
Great Western.....	1,550	2,147	0.72
London & Northwestern.....	1,716	2,182	0.78
Midland.....	1,518	1,716	0.88
Northeastern.....	1,384	1,480	0.91
Great Northern.....	659	601	1.09
AMERICAN LINES.			
Pennsylvania.....	1,120	627	1.79
New York Cent. & N. J.....	1,018	639	1.59
New York & New Haven.....	202 3/4	97	2.09
Chicago, Burlington & Quincy.....	2,772	441	6.28
Lake Shore.....	1,178	494	2.38

From these figures it will be seen that one of the above English lines has a locomotive for less than three-quarters of a mile of road, two others for less than seven-eighths of a mile, and one for less than a mile. It is not certain either that these have the largest relative equipment in the country, but the data concerning them are the only ones accessible as this letter is written.

From the hotel where Americans most do congregate in Liverpool, it is but a few minutes walk to either the Northwestern or the Midland Railway stations. Accidentally the former was visited first, and, contrary to expectation, it was found that the whole of it was open to the public, to go wheresoever it pleased. The first impression produced by the sight of an English train was its extremely diminutive size. This was true of both the passenger cars, or "carriages," as they are called here, and the engines, although of the latter it is more apparent than real, owing to the absence of the large cabs and cowcatchers universal in the United States. Another noticeable feature was the comparative silence with which trains entered and left the station. There was little or none of the clang of an American train, but the English vehicles seemed almost shod with india-rubber, so noiseless were their movements. This observation has since been confirmed at other stations and on other lines, but at present the reason for it is not clearly apparent.

The panels in the upper portions above the window sills, of the Northwestern "carriages," are painted white, and below the windows a dark brown, the effect of which is somewhat like that produced by the spotted and striped circus horses which most of us admired so much in youthful days. The little four-wheeled cars, without end platforms or clear-stories on top, and the engines with only a semblance of cabs, looked almost like playing at railroading. Of course, this is not the expression of any opinion, other than that produced upon an American by a first sight and a few minutes observation in a great English station.

When, however, attention was directed to the track, and not to the rolling stock, the impression was the reverse of the first one. As most of the readers of the *Railroad Gazette* probably know, very few flat-bottomed, or what are called *Vignoles*, rails are used in Great Britain. Almost universally the form of the sections with which the lines are laid is either double-headed, or what is called bull-headed pattern. These are laid or held in cast-iron chairs bolted to the sleepers. The former have two lugs, or projections, between which the rails are fastened by a wooden wedge. Consequently they stand about two to three inches above the sleepers, and as their weight is about 84 lbs. per yard, the track has the appearance of great massiveness, if compared with that in common use on American lines.

The journey from Liverpool to London afforded the first opportunity of riding in an English "railway carriage." To get the most favorable impression the first-class was selected. As the question of the relative comfort of the British carriages and American cars is so often discussed, a few observations about the construction of the former, so far as it relates to the comfort of passengers, may be interesting to many readers. The dimensions of the seats on the Midland Railway, the line in which the journey was made from Liverpool to London, were not taken, but on another road, the Great Northern, on which the carriages are arranged substantially as on the Midland, the seats were measured. The body was 7 ft. 3 in. wide inside, and the compartment 7 ft. long. The seats are arranged transversely, the passengers sitting to face each other, the space being divided into three seats in front and three back. The width of the seats measured crosswise of a person sitting in them was 29 in., measured from centre to centre of the arm-rests, 19 in. in the clear between the latter. The arm-rests were, therefore, 10 in. wide, giving room enough for the arms of two passengers. The former at the sides of the carriage were only half this width, and intended for one passenger only. The depth of the seats was 30 in., measuring from the partitions which formed the compartment to their outer edge. The upholstery was 9 in. thick in the back just above the seat, so that the depth of the latter, in the clear, was 21 in. The upholstery was carried up high enough to support a passenger's head, and side rests were also provided for its support. The seats were also inclined backwards.

There were two points of marked superiority in their comfort over any seats the writer has ever seen in American cars. First, there was more room, and, second, the upholstery of the back was so arranged as to be much more comfortable than that used in either the drawing-room or ordinary cars in the United States. The superiority of the English upholstery seems to be that they aim to give support to the lower part of the spinal column, which has fewer muscles and bones to sustain it than the upper part has. To do this the back, just above the seat, is made to project about 6 or 7 in. further out than it does higher up. The projection is formed of light springs and hair, so as to make a soft cushion, which adjusts itself to the form of the body, and at the same time supports it where it needs support. In the upper part of the back softness is not so much aimed at. The result is a seat which is much more comfortable than any which American car upholsterers or car-builders have thus far given their countrymen.

The Midland Company, on its principal day trains, runs Pullman drawing-room cars. Now it would be unjust not to give Mr. Pullman and his company credit for the many improvements they have made in car construction. They changed the sleeping cars of America from dens of nastiness to clean and decent habitations for weary travellers, in which the latter may rest without either entomological or pestilential fears. The odor, if not of sanctity, at least of cleanliness, which is next to it, goes with his cars the world over, and many a tired wayfarer has lain down in them blessing the man who invented both sleep and sleeping cars. But the art of making comfortable seats is one which the Pullman Company has not excelled in, as any one may know on the Midland road who will try the drawing-room cars and a first-class English carriage, as the writer did. Their relative comfort is as that of a new and an old shoe.

Of the compartment system it may be said that there is not the slightest probability of its ever coming into use in America. The difficulty of providing communication between the compartments and the other portions of the cars is fatal to it for our long journeys. The danger, too, of personal violence to passengers if shut up with strangers, of which all travelers in Great Britain stand in more or less fear, would probably be no less in the United States, especially on the borders of civilization, than it is on British soil.

Means of communicating with the guard and engine "driver," as he is called here, has been a subject on which English ingenuity has long been exercised. The following notice, copied from one in a new Midland carriage, will indicate the progress which has been made in this direction.

"Directions for using the means of communicating between the passengers and the servants of the company.

"To call the attention of the guard and driver, passengers must pull down the cord which will be found outside the carriage close to the cornice over the window of the carriage door. There are cords on both sides of the train, but that on the right hand side in the direction in which the train is running is the only one by which alone the communication can be made.

"Passengers are earnestly requested themselves to protect the communication from improper and mischievous use, as it is very important that it should not be used without real and urgent necessity. Under the provisions of the Regulations of Railway Acts, cap. 119, any passenger who makes use of the communication without reasonable and sufficient cause will be liable for each offence to a penalty not exceeding five pounds."

This notice was printed in a circular form about 4 1/2 to 5 in. in diameter. Some of the lines of the print were straight, others semi-circular, so that it was quite difficult to read even when near to it, and quite impossible when some distance off, or without standing up. It seems as though it would be very improbable that this notice would be understood or that passengers would be able to follow its directions in case of a sudden accident, and railroad accidents are nearly always sudden.

It would be very unwise, though, to pronounce decidedly against the English system of "carriages" on the limited knowledge that could be gained by a few journeys on their lines. The social relations, the physical conditions, the habits of the people all have their influence in determining their methods of travel. The lower classes of the people in Great Britain are poorer, as a rule, less cleanly in their dress, and in almost every way lower down than in America. The line of separation between them and the middle and upper classes is more distinctly defined, and in traveling, as well as in other relations, it is recognized and demanded. It may be said, to the credit of all classes of English travelers, though, that they do not expectorate, in the carriages or out of them, so that abomination, from which decent people in the United States suffer so much, is not often encountered here.

A great deal may be said both for and against the division of travelers into three classes. Practically, on many of our own lines they are divided into two classes by the use of drawing-room and sleeping cars. In England, if a poor person wants to travel at a low rate of fare, and does not care much what kind of fellow-passengers he travels with, he buys a third-class ticket. If he values cleanliness, but does not want to incur the expense of the first-class, he goes second, at a moderate rate, and, if inclined to be exclusive, pays a high rate for a seat in a first-class compartment. The result is that all parties are better accommodated than they would be with one class only, even if supplemented with our expensive sleeping and drawing-room cars. It is a question which might be well worth the consideration of some of the managers of the lines in the more populous sections of the United States, whether it would not pay to run cheap cars on all, or nearly all, passenger trains to correspond with the third-class English carriages, the rates of fare to be reduced sufficiently to lead the poorer class of people to travel. The extent to which this kind of travel may be stimulated

by low rates has been shown by the Sound boats from New York.

Of the general construction of the carriages, only a brief notice will be given, more detailed accounts being left for future comments and observations in the shops and works of different lines. The carriages, generally, have either four or six wheels 42 in. in diameter. The Midland and the Manchester, Sheffield & Lincolnshire lines are, however, using a considerable number of double truck or "bogie" carriages, similar to those in use in America. Possibly other lines may be using them which have not yet been visited. The general opinion of the managers who are using "bogie" carriages, as to their relative merits, if compared with those ordinarily employed, seems to be rather undecided, or, at least, is very cautiously expressed. The following statement of the weights of a four-wheeled carriage and one with six-wheeled bogies will show their relative weights. The former is 30 ft. long over the body and has two first-class and two second-class compartments and one for luggage; it will seat 12 first-class and 20 second-class passengers, or 32 in all, and weighs 11 tons 10 cwt., or 805 lbs. per passenger. The bogie carriage is 54 ft. long over body with six-wheeled trucks, has three first and four third-class compartments and one for luggage, and seats 18 first and 40 third-class passengers, or 58 in all, and weighs 23 tons, or 888 lbs. per passenger, or 83 more than the other. Some English managers, like some of their brethren in America, are inclined to assign more importance to a comparatively small excess of dead weight than is properly due to it. There has been a great deal of fallacious reasoning about it on both sides of the Atlantic.

Any one who will travel in the two kinds of carriages must find that the motion of the bogie cars, whatever the merits of that system may be, certainly is much easier and pleasanter than that of the four and six-wheeled carriages, notwithstanding the fact that the English roads are ordinarily kept in such excellent condition.

The fact that a bogie carriage rides much easier than one of the European type, with four or six wheels, is indicated also by the care with which the latter is supported on its springs. These springs are of what seems to an American inordinate length, but doubtless we might imitate English practice in this respect to advantage and to the comfort of travelers. Some of the springs on the Midland road are 7 ft. long and consist of seven plates 3/4 in. thick and 4 or 4 1/2 in. wide. It is said on this and other roads that they rarely break, although on some of the lines the inspection of them is much more rigid than it is on many lines in America.

Double buffers, near the outside of the carriages and wagons, are universally used, and so are hooks for coupling, instead of draw-heads. A kind of double turn-buckle arrangement, with a screw between its two parts, is used for connecting the hooks together. When the former is attached to the hooks, the screw is turned by a weighted lever attached to it, and the buffers of the two carriages are thus drawn together and more or less compressed. On "goods wagons" a chain of three or four links, similar to those on some of the four-wheeled cars of the Pennsylvania coal roads, is used for coupling.

The arrangement of lamps on the carriages is novel, and a little amusing at first to an American. The carriages are seldom built with what in America is now called a clear story in the roof. To provide for the lamps a round hole about 12 in. in diameter is cut in the roof of each compartment, and the lamp is inserted into this opening by a man on top of the roof. The lamps are all made duplicates of each other, and the burner is inclosed in a glass guard or globe about the size and shape of half of a good-sized watermelon, cut in two transversely, the hemispherical part being below the burner and the flat part or place corresponding to that which would be cut in the melon being open and above. These glasses are not unlike those used on some street lamps, of recent date, to be found in most of our cities, and being below the burner they cast no shadow. In nearly all of the principal stations there are lamp-rooms in which a supply of carriage lamps is kept and trimmed and lighted for trains as they may require them. A sufficient number for a train is put on a truck and wheeled alongside the former, and the lamps are then handed up to a man on top of the cars by another on the platform by a long stick with a hook on its end, to which the lamp is attached. The man on top opens a cover on a cylindrical receptacle over the hole in the roof, into which the lamp is inserted. In removing the lamps the man on top takes them out of their receptacle and throws them down to the attendant below, who "catches them on the fly," and keeps the looker on at first in a lively anticipation of the delight of seeing some of them smashed, but, owing to the skill of the men, they never seem to confer this pleasure. When the lights are to be put out, but the lamps not removed, a man goes over the tops of the carriages, opens the covers of the lamp receptacles, and inserts a tin tube to the lamp flame, and a puff of air from his mouth through the tube does the work without the necessity of lifting out the lamps.

This letter might be almost indefinitely extended, by relating the novelties and oddities, or what seem such, that an American sees on first traveling over English roads. Further accounts of these will be reserved, though, until more specific descriptions of shops and other places of interest which have been and will be visited are given.

M. N. F.

The President's Train.

The most extraordinary run ever made in this country was that of the train which carried President Garfield from the White House to the cottage at Elberon (Long Branch),

where he now is. To enable the journey to be made with the least possible jar, about half a mile of special track was laid from the Baltimore & Potomac depot at Washington to a point as near the White House as possible, and nearly three quarters of a mile from Elberon depot to the door of the cottage. The run was made by Baltimore, Philadelphia, Trenton, Monmouth Junction, Freehold and Sea Girt, and was entirely over Pennsylvania tracks except the 9 1/4 miles from Sea Girt to Elberon over the New Jersey Central. The speed varied from 35 to 60 miles an hour, the train leaving Washington at 6:30 a. m., and reaching Long Branch at 1:10 p. m.

On the passage not only was the track kept clear ahead, but on the opposite track all trains were stopped and all traffic was for the time suspended, in order that the trip might be made as quietly as possible, and the crowds which assembled at many points preserved complete silence. At the West Philadelphia shops all work was stopped. The necessary stops for fuel and water were made at Patapsco, Bay View, Lamokin and Frankford, and all the large stations were passed at full speed.

The train consisted of a baggage car, a parlor car, the President's car of the Pennsylvania Railroad, and a car which had been specially prepared for the President. This was a new combination car, from which the partition and all the seats had been taken, extra storm doors put in, the windows provided with netting to exclude dust, and a special arrangement of springs made to carry the President's bed. The car had also been put on new trucks.

The train was drawn the whole distance by Pennsylvania engine No. 658, which had been sent down from the New York Division. This is one of the new Class K heavy passenger engines, burning anthracite coal, and did its work well. The cars were prepared and the arrangements made under the supervision of Mr. Theo. N. Ely, Superintendent of Motive Power.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:
Wabash, St. Louis & Pacific, special meeting, at the office in St. Louis, Sept. 28.

Louisville & Nashville, annual meeting, in Louisville, Ky., Oct. 5. Transfer books close Sept. 22.

Louisville, New Albany & Chicago, special meeting, in New Albany, Ind., Oct. 20, to vote on consolidation with the Evansville, Rockport & Eastern.

Texas & Pacific, postponed annual meeting, at the office, No. 195 Broadway, New York, Sept. 15, at noon.

Dividends.

Dividends have been declared as follows:
New York Central & Hudson River, 2 per cent., quarterly, payable Oct. 15. Transfer books close Sept. 15.
Union Pacific, 1 1/2 per cent., quarterly, payable Oct. 1. Transfer books closed Aug. 31.

Railroad Conventions.

The Brotherhood of Locomotive Engineers will hold its annual meeting in Boston, Sept. 12, continuing in session through the week.

The International Road-Masters' Association will hold its annual convention in Cincinnati on the second Wednesday in September (Sept. 14) next.

The National Association of General Passenger & Ticket Agents will meet in St. Louis, Sept. 20.

The Master Car-Painters' Association will hold its annual convention in New York City Sept. 21, beginning at 10 a. m. The Association of American Railroad Superintendents will meet at the Windsor Hotel, New York, Sept. 21, at 11 a. m.

The Order of Railway Conductors will hold its fourteenth annual convention in Buffalo, N. Y., Oct. 4.

The Railroad Commissioners' Convention has been called to hold the fourth annual meeting in Atlanta, Ga., Oct. 11.

The General Time Convention will meet in New York, Oct. 13.

The Southern Railway Time Convention will meet in New York, Oct. 14.

National Association of General Passenger and Ticket Agents.

The following circular has been issued by the Secretary, Mr. A. J. Smith:

"The semi-annual meeting of this Association will be held in St. Louis, at the Southern Hotel, Tuesday, Sept. 20, at 11 o'clock. Special attention is called to the forthcoming report of the special committee of five appointed to recommend a code of rules for the transportation of baggage. It is expected that the Coupon Ticket Committee of fifteen will be ready to report at this meeting. Special attention is therefore called to the requests and suggestions which have already emanated from the committee.

"Note.—Blank credentials will be furnished new members of the meeting."

ELECTIONS AND APPOINTMENTS.

Alabama Great Southern.—Mr. R. B. Stegall has been appointed Car Accountant, with office in Chattanooga, Tenn.

Atchison, Topeka & Santa Fe.—A number of circulars from this company announce the following appointments and transfers, taking effect Sept. 1:

Mr. D. J. Chase has been appointed Superintendent of the entire line and branches. He will have charge of the train and station service and all employees in said service, also all time-tables and connections with other railroads.

Mr. A. A. Robinson, Chief Engineer, will remove his headquarters to Topeka, Kan., and will have charge of track, buildings, bridges, and water-service departments, and construction. All employees in these departments will be subject to Mr. Robinson's directions.

The Telegraph Department requiring the exclusive attention of Mr. R. B. Gemmel as Superintendent, that gentleman is relieved of his present duties as Assistant Superintendent of the Eastern Division, and will henceforth give his entire time to the telegraph service.

The line between Coolidge and Pueblo, including the road to Rockvale (also between La Junta and Raton), will be hereafter known as the Colorado Division. Mr. W. W. Borst, the Superintendent of this Division, will have his headquarters at La Junta, Col. Raton will also be under the charge of the Superintendent of the Colorado Division.

The line between Raton and Wallace will be hereafter known as the Las Vegas Division. Mr. Thomas J. Seely is appointed Division Superintendent, with headquarters at Las Vegas, N. M. Wallace will be under the charge of the Superintendent of the Las Vegas Division.

The lines west of Wallace will hereafter be known as the Rio Grande Division. Mr. Fred Leach, Jr., is appointed Superintendent of this division, with headquarters at San Marcial, N. M.

Atlantic & Northwestern.—This company has been organized with the following directors: George Stephen, Duncan McIntyre, Peter Mitchell, J. R. Thibodeaux, J. J. C. Abbott, C. C. Colby, A. B. Chaffee, Montreal; Bradley Barlow, St. Albans, Vt.; Robert J. Kimball, New York. The board elected George Stephen President; Duncan McIntyre, Vice-President.

Baltimore & Ohio.—Baltimore papers report that the office of General Manager (a new one on this road) has been tendered to Mr. Geo. P. Frick, who is now president of the North Baltimore Street Railroad Company, and head of the firm of George P. Frick & Co., of Baltimore.

Blue Line.—Mr. George L. Thomas, late Traveling Agent in Michigan, is appointed Michigan State Agent for this line from Sept. 1, in place of Mr. F. Milligan, who was recently appointed General Freight and Passenger Agent of the Detroit, Mackinac & Marquette. Mr. Thomas is probably the youngest agent in the country, and his appointment is considered a recognition of faithful service. He has been nine years connected with the Blue Line, having entered the Detroit office when 13 years old as an office boy.

Burlington & Western.—The officers of this company are: T. W. Barhydt, President; Charles Mason, Vice-President; R. M. Green, Secretary and Treasurer; J. T. Gerry, Chief Engineer. Office in Burlington, Iowa.

Burlington, Cedar Rapids & Northern.—Mr. L. A. Bein is appointed Superintendent of Telegraph and Train-Master.

Canada Southern.—Mr. W. H. Hurlbert has been appointed General Passenger Agent in place of Mr. Frank E. Snow, who has gone to the Wabash.

Central Pacific.—Mr. W. G. Curtis has been appointed Superintendent of Track in place of L. M. Clement. Mr. A. A. Bean succeeds Mr. Curtis as Assistant Superintendent of the Arizona Division, in place of Mr. Curtis.

Chicago & Alton.—Mr. Wm. McPhail is appointed Master Mechanic Kansas City Division, vice James T. Todd, resigned, to date from Sept. 1.

Chicago, Burlington & Quincy.—The following changes in the General Freight Department have been announced, and went into effect Sept. 1:

Mr. Paul Morton, Assistant General Freight Agent, will hereafter be designated as First Assistant General Freight Agent. Mr. Thomas Miller has been appointed Second Assistant General Freight Agent, with his office at Chicago. Mr. G. H. Ross has been appointed Division Freight Agent in charge of the Iowa Division, with his office at Burlington. Mr. W. P. Moore, General Agent at Quincy, will, in addition to his other duties, have charge of the freight business of the Carthage Branch between Carthage and Burlington.

Chicago, Milwaukee & St. Paul.—Mr. J. D. Brown has been appointed Assistant General Passenger Agent, with special charge of the Northwestern business. His office will be in St. Paul, Minn. Mr. Brown was formerly General Passenger Agent of the Missouri, Kansas & Texas.

Chicago, St. Paul, Minneapolis & Omaha.—Mr. W. H. S. Wright is appointed Purchasing Agent for this company. Office, St. Paul, Minn. The appointment dates from Sept. 1. Mr. R. W. Clark is appointed Paymaster in place of Robert G. Deathe, resigned.

Cincinnati, Hamilton & Dayton.—Mr. Charles M. Woodward has been appointed Purchasing Agent.

Cincinnati Northern.—The officers are now as follows: President, Gen. John M. Corse; Vice-President, Albert Netter; General Counsel, Ozo J. Dodds; General Manager, C. W. Bradley; Treasurer, M. M. White; Cashier, B. J. Bachman; Auditor and General Freight and Passenger Agent, M. A. McLaughlin.

Credit Valley.—All communications in relation to car mileage and movement of cars should be addressed to H. G. Taylor, Master of Transportation, Parkdale, Ont. Checks should be sent to and drafts drawn on H. E. Suckling, Secretary and Treasurer, Toronto.

Creve Coeur Lake Extension.—The directors of this company are: Augustus B. Corey, Horace A. Stephens, St. Louis; John S. Field, Charles B. Shedd, Edward A. Shedd, Chicago.

Des Moines & Northwestern.—Mr. H. B. Skeel has been appointed General Superintendent.

Evansville & Terre Haute.—Mr. O. S. Lyford, General Superintendent of the Chicago & Eastern Illinois, has been appointed General Superintendent of this road also. Mr. C. J. Hepburn has been appointed Division Superintendent, with office in Evansville, Ind. Mr. Hepburn was formerly on the Oil Creek & Allegheny River road.

Florida Southern.—The officers are: John B. Hall, President; Charles Francis, Vice-President and General Manager; Wm. L. Chandler, Secretary and Treasurer; Edward Avery, Attorney; Charles A. Boardman, Land Agent; N. R. Gruelle, General Superintendent. The Vice-President, Land Agent and General Superintendent are at Palatka, Fla.; the other officers in Boston.

Indiana, Bloomington & Western.—At the annual meeting in Indianapolis, Sept. 7, the following directors were chosen: F. W. Peck, Chicago; J. D. Campbell, Davenport, Ia.; R. K. Dow, J. L. Farwell, Claremont, N. H.; L. H. Carhart, Austin Corbin, F. W. Dunton, Milton Garrison, Henry W. Maxwell, J. R. Maxwell, C. H. Odell, E. R. Root, Alfred Sully, New York.

Jacksonville, Pensacola & Mobile.—Mr. C. H. Allen, Agent and Manager for this road, has appointed E. R. Hammat, Treasurer, and J. P. Laird Master of Transportation.

Lake Shore & Michigan Southern.—The following circular from General Manager John Newell is dated Sept. 1:

"Mr. Addison Hills, General Freight Agent of this company, has been appointed Assistant General Manager. He will have general supervision of freight traffic, and such other duties as may be assigned him by the General Manager. Mr. George H. Vaillant has been appointed General Freight Agent. Mr. J. T. R. McKay, Assistant General Freight Agent. Under the direction of the General Freight Agent, he will have charge of the business of the Freight Department at all stations except Chicago, Englewood and South Chicago, and of such other freight business as the General Freight Agent may direct. Headquarters of these officers will be at Cleveland.

"Mr. Chas. M. Gray, Assistant General Freight Agent, with office at Chicago, will, under the direction of the General Freight Agent, have charge of east-bound business from Chicago, Englewood and South Chicago, and from connecting railways at Chicago. These appointments to take effect on this date."

Louisville, Cincinnati & Lexington.—Mr. H. Middleton has been appointed Master Mechanic, in place of Mr. A.

Schaeffer, resigned. Mr. Middleton was recently on the Louisville & Nashville.

Louisville, New Albany & Chicago.—The following circular from General Superintendent McLeod is dated Louisville, Ky., Aug. 29: "Mr. Josiah Bettis has been appointed Master Mechanic for this company vice Mr. Geo. H. Ruhlandt, resigned, and will assume the duties of the position Sept. 1. Officers and employees will be governed accordingly."

Louisville & Nashville.—The following order from General Manager de Funiak was issued Sept. 1:

"Mr. Gilbert C. Breed is this day appointed Assistant General Manager, with full authority to act in all departments under my control. His orders to general officers and division superintendents will be respected accordingly."

Mr. Breed has had a very wide and varied railroad experience. For some years past he has been Purchasing Agent of the Louisville & Nashville, and has been for several months acting as Assistant to Mr. de Funiak.

Mexican, Oriental & Inter-Oceanic.—The directors of this company met in New York, Sept. 1, and elected Jay Gould President; O. D. Ashley and Major de Gress, Vice-Presidents.

Michigan Central.—Mr. Frank I. Whitney has been appointed Assistant General Passenger and Ticket Agent in place of Samuel Powell, resigned.

The following traveling passenger agents have been appointed: W. T. Hayes, headquarters Kansas City, Mo.; W. L. Wyand, St. Paul, Minn.; H. Bradford, Milwaukee, Wis.

Middletown & Crawford.—This company has re-elected Daniel Thompson President and Superintendent; E. M. Madden, Vice-President; G. P. Madden, Secretary and Treasurer; G. A. Thompson, Auditor. Officers at Thompson Ridge, N. Y.

Newport & Wickford.—At the annual meeting in Newport, Sept. 5, the following directors were chosen: John N. A. Griswold, John G. Weaver, Newport, R. I.; S. H. Vaughn, Wickford, R. I.; D. King, Jr., George M. Miller, George Peabody Wetmore, New York. The board re-elected George M. Miller, President; A. S. Sherman, Secretary and Treasurer.

New York, Chicago & St. Louis.—The following circular, from C. S. Brice, Vice-President, is dated Cleveland, O., Aug. 29:

"Mr. Lewis Williams has this day been appointed General Manager of the New York, Chicago & St. Louis Railway, the appointment to take effect from this date. All communications should be addressed to him at the general offices of the company, No. 122 Water street, Cleveland, O."

Northern Central.—Mr. Robert Neilson is appointed General Superintendent and Mr. Howard Fry Superintendent of Motive Power of all this company's lines north of Maryville, Pa., including the Susquehanna, Shamokin, Elmira and Canandaigua divisions. Messrs. Neilson and Fry hold the same position on the Philadelphia & Erie.

Division Superintendents are appointed as follows: Susquehanna Division, Thomas Gucker; Shamokin Division, A. B. Starr; Elmira and Canandaigua divisions, Spencer Meade.

Northern Pacific.—Mr. Thomas Richardson has been appointed Grain Agent, and will have the general supervision of all receipts and shipments of grain through elevators and warehouses on this road.

Pennsylvania.—Mr. A. P. Kirtland has been appointed Superintendent of the Western Pennsylvania Division, in place of Mr. E. B. Taylor, transferred to the Pittsburgh, Cincinnati & St. Louis.

Mr. W. H. Myers is appointed Assistant Engineer Middle Division, in place of Spencer Meade, transferred to the Northern Central. Mr. A. E. Reed is appointed Assistant Engineer Tyrone Division, in place of W. H. Myers, transferred.

Pennsylvania Company.—Mr. Wm. A. Baldwin is appointed Manager, with office in Pittsburgh, and will have immediate charge of the operation of the company's lines, under direction of the General Manager.

Mr. George B. Edwards is appointed Eastern Manager of the Union Line, with office in Pittsburgh. He will have charge of all agents at and east of Pittsburgh.

Mr. C. D. Gorham, late Assistant General Manager Western Division, will hereafter be known as General Western Agent, with office in Chicago. His duties will be substantially the same as heretofore.

Under the new organization the lines directly worked by this company are divided as follows:

1. The Cleveland & Pittsburgh Division will include the Cleveland & Pittsburgh road and all branches west of Rochester. R. F. Smith, Assistant Manager, Cleveland, O.
2. The Eastern Division will include the Pittsburgh, Ft. Wayne & Chicago east of Crestline, the Massillon & Cleveland and the Cleveland & Pittsburgh east of Rochester, including terminal yards and depots. George S. Griscom, Superintendent, Pittsburgh, Pa.
3. The Western Division will include the Pittsburgh, Ft. Wayne & Chicago from Crestline to Chicago. C. D. Gorham, Superintendent, Crestline, O.
4. The Erie & Ashtabula Division will include the Erie & Pittsburgh, the Ashtabula & Pittsburgh, the Lawrence and the New Castle & Beaver Valley roads. John M. Kimball, Superintendent, Youngstown, O.
5. The Toledo Division will include the Northwestern Ohio road. J. S. Morris, Superintendent, Toledo, O.

Pittsburgh, Cincinnati & St. Louis.—Mr. William A. Baldwin is appointed Manager, with office in Pittsburgh, and will perform such duties as may be assigned him by the General Manager.

Poughkeepsie, Hartford & Boston.—Mr. J. A. Perkins, Superintendent, is appointed General Freight and Passenger Agent also, in place of A. W. Cable, deceased. Office in Poughkeepsie, N. Y.

Rome, Watertown & Ogdensburg.—The office of E. M. Moore, General Freight Agent and Car Accountant, is removed from Watertown to Oswego, N. Y.

Sabine & East Texas.—The officers of this company are: President, J. F. Crosby, Houston, Tex.; Vice-President, Auditor and General Freight and Ticket Agent, A. H. Viele, Beaumont, Tex.; Secretary, W. N. Shaw, Houston, Tex.; Treasurer, W. H. Hollister, New York; Engineer and Superintendent, R. H. Cousins, Beaumont, Tex.

St. Johns.—Mr. F. M. Clark has been appointed General Freight and Ticket Agent, with office at St. Augustine, Fla.

St. Louis City & Pacific.—The following circular from General Manager P. E. Hall is dated Aug. 25: "Mr. F. C. Hills has been forced by long and continued ill health to resign his position as General Traffic Manager. His resignation has been accepted, to take effect at the close of the present month. On and after Sept. 1, the office of General Traffic Manager will be abolished. The duties heretofore performed

by him will be assumed by the General Freight Agent and General Passenger Agent respectively."

And the following circular is dated Aug. 29:
"Mr. K. C. Moorhouse has been appointed General Freight Agent of this company. Mr. J. R. Buchanan has been appointed General Passenger Agent of this company. Both appointments take effect this day."

"The general offices of the freight and passenger departments will remain at Missouri Valley, Iowa, as heretofore."

Texas & Pacific.—The following circular from General Manager H. M. Hoxie is dated Sept. 1:

"Mr. E. R. Murphy having been assigned to other duties, Mr. C. G. Warner is hereby appointed Auditor, with office in St. Louis, Mo."

"All reports heretofore sent to E. R. Murphy, Auditor, Marshall, Tex., will be addressed and forwarded to C. G. Warner, Auditor, St. Louis, Mo."

"Mr. Herman Kretz will continue as Cashier and Paymaster at Marshall, Tex., but remittances will be made to D. S. H. Smith, Local Treasurer, St. Louis, Mo., on and after Sept. 1."

Texas, Louisiana & Western.—The officers of this company are: President, John Martin; Vice-President, W. J. Murphy; Treasurer, C. C. Brinkley. Office at Sherman, Texas.

Toledo, Cincinnati & St. Louis.—The following circular from Gen. J. M. Corse, President of this company, is dated Sept. 5: "T. A. Phillips is hereby announced as General Manager of the Toledo, Cincinnati & St. Louis Railroad Company, vice W. J. Craig, resigned. Officers and employees will obey and respect him accordingly."

Toledo, Delphos & Burlington.—The following circular from the President, Gen. J. M. Corse, is dated Sept. 5: "T. A. Phillips is hereby announced as General Manager of the Toledo, Delphos & Burlington Railroad Company, vice Major R. G. Butler, resigned. Officers and employees will obey and respect him accordingly."

We are informed by the company that there is no truth in the report that Col. Horace Scott had been elected Vice-President of this company.

Vera Cruz, Jalapa & Puebla.—Mr. A. M. Wellington has been appointed Chief Engineer of this line, which it is proposed to build in the Sullivan or Mexican National interest, but under a separate organization. Mr. Wellington will retain his position in the Mexican National as Principal Assistant Engineer in charge of location and surveys.

Wabash, St. Louis & Pacific.—The Indianapolis, Peru & Chicago road having passed into possession of this company, notice is given that the books will be kept in Indianapolis during the month of September, and drafts for balances drawn during the month will be drawn on L. G. Cannon, Treasurer, Indianapolis. After Sept. 30 they should be drawn on W. B. Corneau, Treasurer of the Wabash, St. Louis & Pacific, at St. Louis. The newly-acquired road is placed under the jurisdiction of Robert Andrews, General Superintendent of the Eastern Division.

West Side & Yonkers.—At the annual meeting in New York, Sept. 5, the following directors were chosen: R. M. Galloway, J. F. de Navarro, C. F. Woerishoffer, W. R. Garrison, Arthur Lear, G. F. Forrest, C. K. Garrison, R. C. Livingston, A. V. Stout.

PERSONAL.

—Mr. Samuel Powell has resigned his position as Assistant General Passenger Agent of the Michigan Central.

—Mr. Royal Hill, senior member of the well-known contracting firm of Hill & McKelney, of Chicago, died recently of typhoid fever in Ironton, O., aged 68 years.

—Mr. W. S. St. George, of Atlanta, Ga., late General Agent of the Port Royal & Augusta road, has accepted the position of General Manager and Treasurer of the Augusta & Port Royal Compress & Elevator Company. His office will be in Augusta.

—Mr. Philo Morehouse, for many years Claim Agent of the Lake Shore & Michigan Southern road, died recently. He had been connected with the road for a long time, and was at one time a director of the old Michigan Southern & Northern Indiana Company.

—Mr. Frank E. Snow, recently General Passenger Agent of the Canada Southern, and now General Agent of the Wabash, St. Louis & Pacific in Detroit, was presented recently with a valuable gold watch by his former associates on the Canada Southern.

—Mr. Thomas C. Henry, Master Bridge-Builder of the Atlanta & Charlotte Air Line, was dangerously injured on that road Sept. 1. He was struck and thrown from Thickety bridge by a freight train, while he was making an inspection of the bridge.

—Mr. Lewis Williams, late General Manager of the Cincinnati, Hamilton & Dayton, and now of the New York, Chicago & St. Louis, was presented at Cincinnati, Aug. 27, with an engrossed and framed testimonial and a purse containing \$4,100 contributed by his friends.

TRAFFIC AND EARNINGS.

Lake and Canal Rates in August.

The Buffalo Commercial Advertiser of Sept. 5, says: "The condition of affairs along the great water route was nearly as bad during the month of August as was possible and have any boats moving. The demand for tonnage was light, and the competition of the railways was as severe as it had been during the preceding month. The average by lake last month was lower than for any corresponding month since 1876, and lower by canal than ever before, in August. The following exhibit, showing the average freight on wheat and corn from Chicago to Buffalo by lake, and the average on the same cereals from Buffalo to New York by canal, for August in the years named, tells its own story of depression:

Y. ar.	Lake.		Canal.	
	Wheat.	Corn.	Wheat.	Corn.
1881....	3.1	2.8	4.1	3.6
1880....	5.6	5.1	5.9	5.4
1879....	4.9	4.5	6.5	5.9
1878....	3.2	3.0	5.2	4.9
1877....	4.0	3.6	7.0	6.4
1876....	2.2	1.8	5.8	5.3
1875....	2.5	2.2	8.1	7.3
1874....	3.1	2.1	9.0	8.0
1873....	6.5	5.6	10.6	9.6
1872....	9.6	8.8	11.8	10.8
1871....	6.2	5.7	9.4	8.4
1870....	5.0	4.7	9.4	8.2

"There were days in the month when not a single sail-craft arrived in this port, which is exceedingly exceptional. It is rather encouraging, however, that the lowest rates by lake and canal, namely, two cents and four cents respectively, were quoted on the first, and that prices steadily but very gradually improved to the last, when 4½ and 6 cents, respectively, were the prevailing quotations."

Railroad Earnings.

Earnings for various periods are reported as follows:

Eight months ending Aug. 31:		1881.	1880.	Inc. or Dec.	P. c.
Chl. Mil. & St. Paul.....	\$10,367,000	\$7,465,470	I. \$2,901,530	38.9	
Chl. St. P., Minn. & O.....	2,654,265	1,985,852	I. 668,413	33.7	
Den. & R. G.....	3,710,236	1,855,490	I. 1,854,746	102.2	
Hannibal & St. Jo.....	1,425,760	1,598,947	D. 173,187	10.8	
Houston & Tex. Cent.....	2,277,339	1,977,803	I. 299,446	15.1	
Louisv. & Nashv.....	7,181,916	5,625,949	I. 1,555,967	27.7	
Mill. Lake Sh. & W.....	349,574	247,117	I. 102,457	41.5	
Mobile & Ohio.....	1,412,799	1,285,922	I. 126,877	9.9	
St. L., I. M. & So.....	4,491,433	3,594,096	I. 896,737	24.9	
St. L. & San Fran.....	2,000,302	1,598,190	I. 402,112	25.2	
Union Pacific.....	16,090,067	14,398,394	I. 2,397,673	16.7	
Wabash, St. L. & P.....	8,901,853	7,561,200	I. 1,340,653	17.7	
Seven months ending July 31:					
West Jersey.....	\$512,367	\$388,620	I. \$123,777	31.9	
Net earnings.....	206,224	149,479	I. 56,745	37.8	
Month of July:					
West Jersey.....	\$148,516	\$131,269	I. \$17,246	13.2	
Net earnings.....	76,309	82,387	D. 6,078	7.7	
Month of August:					
Chl. Mil. & St. P.....	\$1,678,000	\$991,297	I. \$686,703	69.3	
Chl. St. P., Minn. & O.....	368,554	252,403	I. 116,151	46.1	
Col. Hocking Val. & Tol.....	219,000	177,000	I. 42,000	23.7	
Den. & R. G.....	606,193	396,472	I. 209,721	53.0	
Hann. & St. Jo.....	215,308	238,081	D. 22,773	9.6	
Houston & Tex. Cent.....	305,462	289,380	I. 16,082	5.6	
Louisv. & Nashv.....	884,500	752,463	I. 132,037	18.0	
Mill. L. S. & W.....	59,420	31,751	I. 27,669	86.5	
Mobile & Ohio.....	159,348	140,593	I. 18,755	13.4	
St. L., I. M. & S.....	622,500	565,869	I. 56,631	10.0	
St. L. & San Fran.....	286,299	267,273	I. 19,026	7.1	
Union Pacific.....	2,698,659	1,913,035	I. 785,624	37.9	
Wab. St. L. & P.....	1,542,836	1,185,323	I. 357,513	30.2	
Week ending Aug. 20:					
Grand Trunk....	\$40,794	\$41,430	D. \$636	1.5	
Week ending Aug. 26:					
Great Western....	\$91,344	\$105,227	D. \$13,883	13.2	
Week ending Aug. 27:					
Chl. & Gd. Tr.....	\$29,998	\$27,985	I. \$2,013	7.2	

Port Royal Exports.

The Augusta and Port Royal Compress and Elevator Co., which owns two powerful steam cotton compresses and a grain elevator at Port Royal, S. C., has been making energetic efforts to build up a direct line from Port Royal to Liverpool and other European ports. Last year 10 large steamers were chartered and dispatched by the company to Liverpool, Bremen and Havre, and several sailing vessels were also loaded. The company is now making exertions to increase its business under the charge of Mr. W. G. St. George, its General Manager.

Grain Movement.

For the week ending Aug. 27, receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the past eight years:

Northwestern		Northwestern shipments.		Atlantic	
Year.	Receipts.	Total.	By rail.	P. c. by rail.	Receipts.
1874....	3,215,118	3,826,206	1,233,049	32.2	2,455,103
1875....	4,596,574	4,931,793	1,520,811	30.5	4,145,143
1876....	4,832,385	3,271,549	1,573,058	48.2	3,371,266
1877....	4,985,532	4,710,569	1,446,301	24.3	4,846,140
1878....	8,790,893	6,719,785	1,275,462	18.7	7,189,228
1879....	7,428,249	5,701,801	1,659,363	34.0	7,588,240
1880....	8,555,570	6,516,832	2,210,618	33.7	7,328,674
1881....	8,110,025	6,294,012	2,543,070	40.4	5,590,946

The receipts of the Northwestern markets for the week this year are about 5 per cent. less than in the corresponding week of last year, and nearly 8 per cent. less than in 1878, but greater than in any other year. The shipments of these markets make a similar showing. The receipts of the Atlantic ports are 24 per cent. less than last year and the smallest for four years.

Compared with the previous week of this year there is an increase of 608,000 bushels in Northwestern receipts, of 885,000 in Northwestern shipments, and of 266,000 in Atlantic receipts.

Of the Northwestern receipts Chicago had 58.3 per cent., St. Louis 12.2, Peoria 10.9, Toledo 8.3, Milwaukee 4.9, Detroit 3.7, Duquith 0.9, and Cleveland 0.8 per cent. Chicago's percentage is a little larger than recently, those of St. Louis and Peoria smaller. Most of the increase over recent weeks is wheat, which is gained chiefly by Chicago and Milwaukee. About three-fifths of the whole receipts were of corn, however, and Chicago received three-fourths of that; St. Louis 9.6 and Peoria 10 per cent., leaving but 5.4 per cent. of it for the other five places.

Of the Atlantic receipts New York had 46.7 per cent., Baltimore 20.6, Boston 10.2, Philadelphia 9.7, Montreal 7.6, New Orleans 4.9, and Portland 0.3 per cent. New York's percentage is rather small for a summer week; Boston is gaining; Baltimore has much less than last year; Philadelphia is below its average.

Exports from Atlantic ports for five successive weeks have been:

1881.	Aug. 31.	Aug. 24.	Aug. 17.	Aug. 10.	Aug. 3.
Flour, bbls....	83,408	104,103	71,111	75,094	64,138
Grain, bus....	3,815,590	4,138,884	4,019,291	4,597,908	4,240,467

The great decrease compared with last year is striking. The statement below shows it more definitely, it giving the amount of exports for the eight weeks ending Aug. 31 both years:

	1881.	1880.	Decrease.	P. c.
Flour, bbls.....	630,107	750,912	120,805	16.1
Wheat, bu.....	17,144,747	33,479,920	16,335,173	48.8
Corn, ".....	15,644,553	20,083,801	4,439,248	22.1
Oats, ".....	79,478	109,714	30,236	27.6
Peas, ".....	208,338	308,756	100,418	32.5
Barley, ".....	205,329	476,984	271,655	38.0
Flour to bu.....	2,835,481	3,379,104	543,623	16.1
Total bu.....	36,211,043	57,838,279	21,627,236	37.3

This decrease of 37.3 per cent. in the total grain and flour exports for eight weeks is an important matter, but in considering it we should remember that the movement last year at this period was altogether unprecedented. Including flour, the reduction in wheat exports for the eight weeks was 22,170,000 bushels, or just one-eighth of our total exports of wheat and flour in the whole year of 1880. For the first four weeks of the crop year, beginning Aug. 1, the receipts of the Northwestern markets have been nearly 10 per cent. less than last year, 6 per cent. more than in 1879, and 14 per cent. less than in 1878. The wheat receipts are but half as large as in 1878, and 35 per cent., or 3,843,000 bushels less than last year. The corn receipts are 1,830,000 bushels (11.8 per cent.) more than last year.

For the week ending Sept. 2 receipts and shipments at Chicago and Milwaukee were:

	Receipts.		Shipments.	
	1881.	1880.	1881.	1880.
Chicago	5,128,292	4,134,290	3,048,882	4,232,378
Milwaukee	491,574	237,400	455,701	173,391

Taking the two places together, this an increase of 24.4 per cent. in receipts, and a decrease of 30 per cent. in shipments, compared with last year.

For the same week ending Sept. 2, receipts and shipments at Buffalo were:

Taking the two places together this is an increase of 24.4 per cent. in receipts and a decrease of 20 per cent. in shipments, compared with last year.

For the same week ending Sept. 2, receipts and shipments at Buffalo were:

Receipts at four Eastern markets for this week ending Sept. 2 this year and last were:					
	New York.	Boston.	Phila.	Baltimore.	Total.
1881.....	2,787,632	706,886	485,919	2,713,728	6,694,165
P. c. of total.....	41.6	10.6	7.3	40.5	100.0
1880.....	3,036,961	576,700	753,880	1,210,710	5,578,051
P. c. of total.....	54.4	10.4	13.5	21.7	100.0

The receipts show a great increase, but the shipments a great decrease. The canal shipments are but about half as great this year; the rail shipments 5 per cent. greater. Receipts at four Eastern markets for this week ending Sept. 2 this year and last were:

New York.		Baltimore.		Total.	
1881.	1880.	1881.	1880.	1881.	1880.
By canal.....	2,787,032	706,890	455,919	2,713,726	6,694,153
P. c. of total....	41.8	10.6	7.3	40.5	160.0
1880.....	3,036,961	576,700	753,680	1,210,710	5,578,051
P. c. of total....	54.4	10.4	13.5	41.7	100.0

This shows Baltimore to have received very nearly as much as New York, and an immensely greater quantity than in any other week of this year. Last year, in the latter part of August and first part of July, there were receipts something like it, but these were chiefly wheat, while of the 2,713,726 bushels received last week, no less than 2,010,042 bushels were corn.

Grain receipts at Buffalo up to Aug. 31 are reported as follows, flour in barrels and grain in bushels:

	1881.	1880.	Decrease.	P. c.
By canal.....	19,179,500	44,159,101	24,979,601	56.6
By rail.....	15,090,131	19,205,201	4,106,070	24.4
Total.....	34,278,631	63,364,302	29,085,671	45.9
P. c. by rail .	43.5	30.3

The total decrease in flour was 111,255 barrels, or 8.8 per cent.; in grain, 30,617,050 bushels, or 34.2 per cent. The receipts this year by lake were still larger than in 1879 or in any year before 1878.

Shipments eastward from Buffalo of grain received by lake for the same period were as follows, in bushels:

Wheat.....	4,237,114	6,839,000	D. 2,602,576	38.0
Corn.....	9,019,554	193,038	I. 736,516	381.6
Other grain.....	89,000	167,045	D. 78,846	46.5
Total grain....	5,255,767	7,200,673	D. 1,944,906	27.0

The canal opened May 17, in 1881, and April 20, in 1880. Baltimore grain receipts in September were as follows, flour in barrels and grain in bushels:

grain storage in Baltimore, and for twelve days a backlog of the grain business. This was largely relieved by the opening on Sept. 5 of the new Baltimore & Ohio elevator, which has a capacity of 1,800,000 bushels.

Total flour reduced to wheat, 6,003,757 7,828,108 D. 1,824,351 23.3

There has been the usual trouble this year about lack of grain storage in Baltimore, and for a few days a blockade of the grain business. This was largely relieved by the opening on Sept. 5 of the new Baltimore & Ohio elevator, which has a capacity of 1,800,000 bushels.

August Receipts at Chicago and Milwaukee.

Receipts of grain, flour and hogs at Chicago and Milwaukee during the month of August for four successive years have been:

cent. more than last year; at Milwaukee the grain receipts are the same as in 1878 also, but the increase over last year is nearly 70 per cent. Meanwhile, the flour receipts have never been approached in August before, and reducing flour to wheat, the August receipts of the two places together

The Emigrant Passenger Trouble.

A dispatch from Chicago, Sept. 1, says: "The Western Trunk Line Association met again to-day to consider the ultimatum offered Aug. 23 to several Eastern roads that they must either share certain receipts with the Western lines by Sept. 1, or the latter would refuse all further business with them. The Pennsylvania road accepted the proposition at once; the Erie delayed a little, but finally yielded, followed by the Baltimore & Ohio, leaving the New York Central alone. The ultimatum was about to be enforced to-day, when that road also yielded. The Eastern roads having signified a desire to meet the Association in a conference at an early day, Commissioner Dixon has addressed a letter to the Pennsylvania, Erie, Baltimore & Ohio, New York Central, Fitchburg and Boston & Albany managers, as follows:

"Gentlemen: Understanding that the seaboard lines desire a conference with this Association on emigrant traffic, I am instructed to say that the Association will be pleased to meet your lines at any time and place that may be mutually agreeable upon as convenient, with this understanding, that all seaboard lines have decided to pay full proportions from Jan. 1, this year, to all constituents of the Association as required, and, as soon as the seaboard lines have agreed among themselves what concessions they request, and on what grounds they claim such concessions, and have favored me with a copy of such claims, so that this Association may come to such conference prepared to take action intelligently."

Pacific Through Passenger Traffic.

The San Francisco Bulletin gives the following statement of the through passenger business to and from California since the completion of the Pacific roads in 1869:

"The Central and Union Pacific railroads were united May 8, 1869. The record of through travel from that date to the end of 1869 has never been published. A recent application from this office brought out the following estimate of through travel for that period, or rather from June 1, 1869, to Dec. 31, 1869: Arrived, 17,531; departed, 13,084; gain, 4,447.

"We have the official figures for every subsequent month up to May 1, 1881. Dividing the years so as to make them conform to the life of the road, we are enabled to present the following complete statement of the through passenger traffic of the Central Pacific and Union Pacific railways to and from San Francisco for the 12 years ending May 1, 1881:

Years.	Arrived.	Departed.	Gain.
1869-70	26,600	18,100	8,500
1870-71	30,400	24,300	6,100
1871-72	34,700	20,700	8,000
1872-73	38,100	22,800	15,300
1873-74	52,900	26,100	26,800
1874-75	63,300	25,700	37,600
1875-76	70,300	32,800	37,500
1876-77	61,400	37,000	24,400
1877-78	42,500	29,800	12,700
1878-79	37,700	25,100	12,600
1879-80	34,700	24,700	10,000
1880-81	34,300	29,000	5,300
Total	521,100	318,100	203,000

"The net gain was the largest during the two years ending May 1, 1876. It was the smallest last year in the history of the road.

"The transportation of these 837,200 passengers has been a fine thing for the railroad companies. Averaging each fare at \$1.00, it will foot up a total of \$83,720,000, and possibly \$100,000,000 would be nearer the mark. This is only an incidental gain. The freight traffic has been a still greater source of profit to the companies. The employment which the road has given is another benefit. The gain to California and the Pacific Coast is the permanent addition of 232,000 souls. These have not all stopped in this state, but they are to be found in some of the Pacific states and territories, less the number that have gone to foreign countries, and to that other country from whose bosom no traveler ever returns. Most of these immigrants brought money. Coming, as they did, from the Atlantic states rather than from Europe, they must have brought considerable funds. Allowing for an average of even \$50 per head, the sum total would be \$11,660,000, or of \$100 per capita, there is a total of \$23,200,000, besides muscles and brains of still greater value in a new section of country like ours.

"According to the census the population of California has increased 304,000 in the past decade. This is equal to a gain of 55 per cent. The gain in the material development of the state during the past 12 years has been even greater. The wheat crop has been doubled during this interval, and the same is true of many other crops."

Lake Superior Iron Ore.

Shipments of iron ore from the Lake Superior Region up to Aug. 31 are reported as follows by the Marquette Mining Journal:

	1881.	1880.	Inc.	P. c.
From L'Anse	34,375	34,109	266	0.8
From Marquette	441,529	441,933	404	0.09
From Escanaba	904,319	750,178	154,141	20.4
Total	1,380,203	1,226,280	153,923	12.5

Of the shipments from Escanaba 448,071 tons were from the Marquette District and 455,228 tons from the Menominee District.

Shipments of pig iron from Marquette were 5,828 tons. In addition to the ore reported from the Marquette District, 8,077 tons quartz were shipped, and 16,793 tons ore delivered to local points.

THE SCRAP HEAP.

Locomotive Building.

The Mison Machine Works, at Taunton, Mass., are building five heavy passenger engines for the Fitchburg road, and seven double-truck engines for the Central Iowa, with 17 by 24-in. cylinders and six 48-in. driving wheels. A new two-story brick building, 100 by 300 ft., is nearly completed, and will be used chiefly for locomotive work.

The Central Railroad shops at Columbus, Ga., are building two locomotives for the Central road and one for the Mobile & Girard.

It is said that contracts have been let for new locomotive works in Rome, N. Y., to cost \$200,000 for buildings and machinery.

The locomotives shipped from the three shops at Paterson, N. J., last month were: 7 to the Lake Shore & Michigan Southern; 5 to the International & Great Northern; 5 to the Louisville, New Albany & Chicago; 4 to the Wilmington, Columbia & Augusta; 3 to the Richmond & Danville; 3 to the New York, Lackawanna & Western; 3 to the New York, Susquehanna & Western; 3 to the Chesapeake & Ohio; 1 to the Naugatuck; 1 to the Port Jervis & Monticello, and 1 to the New Haven & Derby—36 in all.

A company has been organized to establish locomotive works in Syracuse, N. Y. Mr. A. J. Belden is Treasurer and Manager.

The Rhode Island Locomotive Works in Providence are building for the Chicago, Milwaukee & St. Paul road 10

eight-wheel engines with 17 by 24-in. cylinders, and 30 Moguls with 19 by 24-in. cylinders.

The New York, Lake Erie & Western shops at Susquehanna, Pa., are very busy changing locomotives from 6 ft. to standard gauge. They have already completed the change on a large number.

The Old Colony shops in Boston have lately completed a heavy passenger engine which is expected to make quick time on the heavy steamboat trains between Boston and Fall River.

Car Notes.

The Gilbert Car Works, at Buffalo, N. Y., are building a number of refrigerator cars for the American Refrigerator Transit Co. One of these cars is to be hand-somely painted up, fitted with glass doors to show its contents, filled with fresh meat and sent to the Wisconsin state fair for exhibition.

The Ramapo Wheel & Foundry Co. now employs about 900 men in its works at Ramapo, N. Y. About 160 car wheels a day are turned out, besides a large quantity of brake shoes. The company has a large number of orders on hand.

The Lake Shore & Michigan Southern shops at Adrian, Mich., are to build seven new postal cars to run between New York and Chicago.

The Southern States Coal, Iron & Land Co. has added to its works at South Pittsburgh, Tenn., the manufacture of freight cars and has already several orders from Southern roads. The company's foundry is also turning out a large quantity of car castings.

The Cape Ann Forge Works at Gloucester, Mass., have taken a contract for 1,600 car axles to go to a Western road.

The Central Iowa shops at Marshalltown, Ia., are building 100 box cars for the road.

The Wells & French Co. in Chicago is building 200 box cars, 33 ft. long inside, for the Wisconsin Central; also 300 flat cars for the Chicago, Milwaukee & St. Paul.

The Michigan Car Co. at Detroit is building for the Chicago, Milwaukee & St. Paul 250 box cars, to carry 20 tons each.

The Harlan & Hollingsworth Co. at Wilmington, Del., is building eight very handsome passenger cars for the Chicago, Milwaukee & St. Paul.

The Barney & Smith Manufacturing Co., in Dayton, O., has lately completed four very handsome dining cars for the Wabash line between Chicago and Kansas City.

The Portland Co., at Portland, Me., has just finished two postal cars for the Maine Central road. They are 60 ft. long, have six-wheel trucks, Miller platforms and vacuum brakes. The inside fittings are in accordance with the specifications of the Post Office Department.

The Georgia Car Co. has its new shops at Cartersville, Ga., nearly ready to begin work.

J. M. Jones & Co., it is said, are about to enlarge their works at Schenectady, N. Y., and will build parlor and passenger cars as well as street cars.

Bridge Notes.

The Clinton Bridge Co., at Clinton, Ia., has the contract for a bridge over the Maumee River, near Toledo, on the new Wheeling & Lake Erie road. The bridge will have an iron draw-span 340 ft. long and nine fixed spans of combination Howe truss, 180 ft. each.

Proposals will be received by H. P. Parmelee, City Clerk, at Denver, Col., for an iron bridge at the Lawrence street crossing of Cherry Creek in that city. The bridge is to be built on abutments constructed by the city, to be one span 150 ft. between centres of end-pins, with roadway 20 ft. wide and two sidewalks of 6 ft. each. It crosses the creek at an angle of 52°. Bids will be received till Sept. 15.

Iron and Manufacturing Notes.

Greenwood & Hutchinson, at Columbus, O., manufacturers of the Greenwood universal planer chuck, are full of business and a month behind their orders. They have recently received orders from Manchester, England.

The United States Circuit Court has decided that the patent held by the Detroit Lubricator Manufacturing Co. is valid, and that the lubricators made by the American Lubricator Co. infringe said patent in their "visible feed" feature. The Court has ordered an injunction to issue, and has referred to a master the question of the amount of damages sustained by plaintiffs from the infringement.

The West Hamburg Rolling Mill, at Hamburg, Pa., is to continue at work.

Work has been begun on a new rolling mill on the Wilmington & Northern road near Coatesville, Pa. It will be known as Worth Brothers' Model Mill.

The Indianapolis Rolling Mill Co. is clearing and grading the site for the new steel mill.

The Ohio Falls Iron Works, at New Albany, Ind., are being enlarged.

The Pittsburgh Steel Casting Co., having completed their Bessemer plant, are now prepared to make heavy castings of all kinds at reduced prices, and blooms and billets of any carbon desired. They will pay particular attention to making special carbon blooms for the trade.—*American Manufacturer.*

The Southern States Coal, Iron & Land Co. is now making 80 tons a day of pig iron in its blast furnace at South Pittsburgh, Tenn. The company has established a large firebrick manufactory, and has furnished linings for a number of blast furnaces in Tennessee and Alabama. The company's foundry is very busy on car and general castings, and one department turns out large quantities of hollow ware. A second blast furnace is nearly completed, and the coke works are to be enlarged.

The Rail Market.

Steel rails are firm and quotations are \$58 to \$60 per ton at the mill for next year's deliveries, though an order for 50,000 tons is said to have been taken at \$56. Higher prices are asked for immediate deliveries, but no order of any size can be placed for delivery before November. Quotations for English steel rails are about \$61 delivered at Atlantic ports.

Iron rails are more quiet and are quoted at from \$47 per ton at mill for heavy sections up to \$48.50 to \$52.50 for light rails. English iron rails are quoted at about \$45 at port for 56 lbs. rails, with light demand.

A considerable business is reported in steel blooms at prices equal to about \$43.50 to \$44.50 at port, duty paid. Buyers are said to be holding off.

Old iron rails are in light demand. Philadelphia quotations are \$27.50 to \$28 per ton for T-rails and \$29.50 to \$30 for double-heads, with very few sales reported.

Spikes are steady and unchanged at \$2.75 per 100 lbs.; fish-plates, \$2.30 to \$2.40; track bolts, \$3.25 to \$3.75. All the makers report plenty of orders.

Attempt at Train Wrecking.

A dispatch from San Francisco, Sept. 1, says: "An attempt was made to throw yesterday's east-bound express from the track near Colfax, for the purpose of robbery. A rail was removed and a portion of the train detached. No one was hurt. On the approach of the robbers the express

messenger put out the lights, secured the doors of the car and armed himself, and the robbers, finding their attempt at surprise a failure, left in a wagon. Officers are in pursuit.

"The following additional particulars were received regarding the attempt to wreck the overland train. Two engines and one car were thrown from the track. Two rails had been removed. When the engine had left the track the fireman jumped to the ground. He was confronted by a man with a shot gun, who ordered him not to move or give an alarm; at the same time the man presented his gun at the express messenger, and ordered him to surrender. About this time the highwaymen, supposed to be five or six in number, became alarmed, and started to run in the brush, leaving the lanterns, masks, cartridges, a Hercules powder fuse, axes, sledge, pick etc."

Verdict on a Grand Trunk Collision.

In the case of the recent collision on the Grand Trunk at Lancaster, P. Q., the coroner's jury found that it was caused by the negligence of the conductor of the train and the operator at Lancaster. The jury also censured the company for not enforcing its rules strictly and for negligence in not requiring all trains to stop and report, and receive orders before starting.

Shooting on a Train.

A dispatch from Albany, N. Y., Aug. 30, says: "The train from the north on the Delaware & Hudson Canal Company's railroad, which reaches this city at 9:35, was the scene to-day of a most exciting affair. When the train reached Comstock two men, supposed to be members of the Frawley and Magee gang, entered the train as passengers. The Chief of Police of Albany and Deputy Sheriff Post of Saratoga County were telegraphed for, and when the train reached Mechanicsville, Post and his assistant boarded the train. Post walked up to one of the men and took the ticket out of his hat to see whether it read Albany or not. The man immediately drew a revolver and fired, inflicting an ugly wound in the neck of Post, who quickly returned the fire, hitting his man on the forehead. The second fellow fled, and Post's victim undertook to follow, but fell to the floor of the car from loss of blood. Post pounced upon and beat him until taken off by the train hands. Number two while running off was shot in the neck. Both men were then secured and taken to Ballston jail. The names given by the criminals are Lewis Proctor and John Murray. In the firing that followed the first exchange of shots the deputy sheriff was wounded in the breast and a man named J. K. Farnam was shot in the shoulder, but not dangerously injured. Proctor's wound is in the back of the neck. One of the prisoners said to a reporter that if his paper circulated in Texas he would like him to publish the fact that Proctor and his friend were arrested in New York state. Proctor is about 26 years of age, 5 ft. 6, and rather slim. The friend is between 30 and 35 and 6 ft. tall. The fellows are known to have committed some robberies in the neighborhood."

Government Contracts.

Col. J. W. Macomb, United States Engineers, will receive bids at his office, No. 1,125 Girard street, Philadelphia, until noon of Sept. 21, for dredging near Bridgeton, N. J., in Cohansy Creek.

Col. John Newton, United States Engineers, will receive bids at his office, Houston and Greene streets, New York, until noon of Sept. 28, for dredging shoal in Buttermilk Channel, New York harbor.

Cider Springs.

An Arkansas man, alleged to be a Baptist minister named Yeatts, has discovered a spring near Greasy Creek of most remarkable qualities. He says "the spring flows from a mountain about 400 ft. high, comes out of the ground about 100 ft. from the top of the mountain, on the north side, and flows at the rate of about 40 gallons per minute, and it is the color of apple cider and tastes just like apple brandy, and has the same effect. Those under the influence of the water are perfectly ecstatic, and hugging and loving everything they meet."

All the railroads in Arkansas have put parties at work to survey branches to the wonderful spring. The travel there is expected to be enormous.

In Maine and New Brunswick there are some stickers in the way of names, but what work would an American brakeman make of Cuautlan, Teoleycuan, Huehuetoca, Tlalapanla and Atzacapotzalco, all of which are stations on the Mexican National road.

OLD AND NEW ROADS.

Atlantic & Northwestern.—This company has been organized in Montreal to complete a line from that city to St. John, N. B., by way of Lennoxville, Lake Megantic and Bangor. It is proposed to use existing roads, building connections where necessary.

Boston & Albany.—The Springfield Republican says: "The new Boston & Albany station at Boston is the third built there for its patrons, if we consider the old Boston & Worcester and the present road as identical. The first was used in 1834-35, and the present station was built near the close of the latter year. It was originally a small affair and has been enlarged from time to time. The new station is built on the site of the large freight depot, near the old station, and bounded by Kneeland, Lincoln and Utica streets, and is a model of its kind. It is 140 ft. long and 118½ wide, three stories high, and built of faced brick with granite trimmings. The first story is 22½ ft. high, the second 15 and the third 13½. Inside is a vestibule 44 by 125 and 42 ft. high. One large skylight covers the whole area, and the beams and trusses and lower story are finished in cherry. The vestibule is surrounded by a balcony of light carving at the second story, and beneath the balcony is a large clock. The women's waiting-room, 35 by 75 ft., opens on the right with three large fire-places at either end built of freestone with carved fronts. The men's waiting-room is directly opposite and has a fire-place like those described. The news-room and a dining hall 34 by 50 ft. join the men's waiting-room, and the ticket-office and package-room are opposite the dining-room, and between the two front entrances are the telegraph and drawing-room car ticket offices. The second story is fitted up in cherry and the third in ash. The floor is hard pine except in the vestibule, where it is paved with stone. There are handsome offices for the company's use, with toilet and bath-rooms. The train-house is entered direct from the corridor, and the walls, 24½ ft. high, are built of pressed brick. It is 444 ft. long, and 118½ wide, with six tracks, each holding 11 cars inside the house. The new station is lighted by the Brush electric light. Architect H. H. Ely made the plans, and the building was under the supervision of Assistant Engineer Hardy."

Bradford, Eldred & Cuba.—Track on this road is now laid from Eldred, N. Y., northward to Ceres, nine miles. The grading is nearly done to Wellsville, 32 miles from Eldred, and tracklaying is in progress.

Buffalo, Baltimore & Ohio.—The Buffalo Express of Sept. 5 says: "The intricate relationships of the Buffalo,

Pittsburgh & Western Railway are a source of constant confusion and blunder, especially as they have of late undergone very material alterations. After a number of conferences the directors have come to terms with the Baltimore & Ohio Railroad Company by which the Southern trunk line accepts the Buffalo, Pittsburgh & Western as its ally for Northwestern business. A new company has been organized under the title of the Buffalo, Baltimore & Ohio to build a line from New Castle, the terminus of the old New Castle & Franklin road, which was bought by the Buffalo, Pittsburgh & Western, to a point on the Baltimore, Ohio & Chicago Railroad, just south of Chicago Junction. The line will be almost direct between the two points, and will afford the Baltimore & Ohio not only a route to Buffalo, but at Salamanca a connection with the Erie or the Rochester & State Line for the East, shorter than either the New York Central or the Erie, from Chicago, and it will have grades nowhere greater than 20 feet to the mile. The money for the building of the road has already been promised, and the new line will not only have the guarantee of all the traffic that can be thrown upon it by the Baltimore & Ohio and the Buffalo, Pittsburgh & Western, but its bonds will also have a traffic guarantee to the extent of 20 per cent. of all the freight accruing to the connecting lines through the new road.

Burlington & Western.—This company has been organized to build a narrow-gauge road from Winfield, Ia., on the Burlington & Northwestern road, westward to Eddyville or Oskaloosa. The corporators are nearly all interested in the Burlington & Northwestern. Grading has been begun on a section of 18 miles, from Winfield to Skunk River, and contracts will soon be let as far as Iowa.

Canadian Pacific.—Proposals will be received at the office of Charles Drinkwater, Secretary, in Montreal, until Sept. 30, for clearing and grading 80 miles of the Sault Ste. Marie Branch, from Algoma Mills, on Lake Huron, to the north side of Spanish River.

Chicago & Northwestern.—Track on the Toledo & Northwestern Division is now laid to Algona, Ia., the crossing of the Chicago, Milwaukee & St. Paul's Iowa & Dakota Division, which is 45 miles northward from Webster City and 114 miles from Tama, the junction with the main line. On the Milwaukee & Madison line track is now laid from Milwaukee, Wis., westward to Waukesha, about 20 miles, and work is progressing steadily.

Chicago, St. Paul, Minneapolis & Omaha.—The following general order has been issued by this company, taking effect Sept. 1:

"Hereafter the salary paid employees working by the month will be understood as including pay for all the time they may work during the month, and no extra pay will be allowed for any work done that it may be necessary to do outside of regular hours, in order to keep up work for which they are responsible, or which they may be required to do. This rule will govern all monthly employees except trainmen, who will continue to be paid by the trip as heretofore."

Chicago, Texas & Mexican Central.—This road is now graded from Dallas, Tex., to Alvarado, 42 miles, and tracklaying has been begun. Grading is in progress from Alvarado to Cleburne, 13 miles.

Cincinnati Northern.—This road is now completed from its Cincinnati terminus north by east to Utica, O., 36.2 miles. This is an extension this year of 6.5 miles from Lebanon to Utica on the northern end, and of 5.5 miles from Norwood into Cincinnati on the southern end. The trains do not yet run regularly over the whole line, the September time-table giving the time only from Walnut Hills, 1.8 miles from the Cincinnati terminus, to Lebanon, the distance covered being 27.9 miles.

Cincinnati Southern.—The Trustees of this road on Sept. 3 voted to award the lease to a combination consisting of Mr. Wolfe (representing the Alabama Great Southern syndicate), and parties in Cincinnati, including those chiefly interested in the Common Carrier Company now operating the road. The award is made under Mr. Wolfe's bid, which was \$800,000 a year for the first five years; \$900,000 for the second five years; \$1,000,000 for the third five years; \$1,090,000 for the fourth five years and \$1,250,000 for the fifth five years, making \$25,200,000 for the whole period of 25 years. This was not the highest bid.

In Cincinnati, Sept. 7, the Sinking Fund Commissioners unanimously approved the action of the Trustees in awarding the lease. The lessees agreed to deposit \$500,000 in bonds, to secure payment to the present operating company for the equipment, etc. Possession will be given to the new lessees on Oct. 1, probably.

Cleveland, Columbus, Cincinnati & Indianapolis.—At the special meeting in Cleveland, Sept. 2, the stockholders voted to approve the agreement of consolidation with the Cincinnati, Hamilton & Dayton Company. Only 13 shares were voted against the consolidation.

The agreement will take effect Oct. 20, when a meeting will be held in Cleveland to elect directors and organize the consolidated company.

Cleveland, Mt. Vernon & Delaware.—The Court has authorized the Receiver to borrow \$200,000 on 7 per cent. certificates for the purpose of putting the road in good order, putting in new rails and building a number of new bridges.

Columbus & Western.—From Sept. 1 the branch of the Western Railroad, of Alabama, from Opelika, Ala., to Columbus, Ga., is transferred to and worked as part of this road, making it 89 miles long, from Columbus to Goodwater, Ala. The road is controlled by the Central, of Georgia.

East Tennessee, Virginia & Georgia.—This company has reduced local fares on its main line to three cents per mile for tickets and four cents per mile when payment is made to conductors. Mileage and round-trip tickets are abolished.

Elizabeth, Lexington & Big Sandy.—The completed section of this road, from Lexington, Ky., to Mt. Sterling, which has for several years been worked by the Louisville, Cincinnati & Lexington, is now operated by the Kentucky Central Company.

Florida Southern.—This road is now in operation from Palatka, Fla., on the St. John River westward to Gainesville on the Atlantic Gulf & West India Transit road, a distance of 49 miles. Grading is in progress from Gainesville south to Leesburg, and a survey is being made for a branch from Gainesville north to Lake City. It is the intention to build the road through to Tampa and Charlotte Harbor. The road is of 3 ft. gauge and laid with 40-lb. rails. It was formerly, we believe, known as the Gainesville, Ocala & Charlotte Harbor.

Gulf & East Texas.—This company has filed articles of incorporation for a railroad from Bolivar Point, near Galveston, Tex., to Beaumont, with a branch to Sabine Pass. The capital stock is \$2,000,000 and the incorporators are: E. F. Hill, S. B. McAshan, T. W. House, Henry Fox,

P. B. Watson, J. C. Zimmer, J. G. Owen, C. A. Burton, W. R. Baker and W. N. Shaw, all of Houston.

Gulf, Colorado & Santa Fe.—On the Ft. Worth Branch track is now laid to Brazos Crossing, 79 miles northward from the main line at Temple Junction, and 297 miles from Galveston. Work is progressing steadily to Ft. Worth, which is about 48 miles beyond the present end of the track.

Houston, Shreveport & Chesapeake.—This new company has filed articles of incorporation for a railroad from a point near Liberty, Tex., on the Texas & New Orleans road, northeast to the Sabine River. The line is to be extended by a Louisiana organization to Shreveport. The section in Texas from Liberty to the Sabine will be 140 miles long. The capital stock is \$5,000,000. The incorporators are: Isaac E. Gates, Elizabeth, N. J.; Edward H. Fardee and Wm. E. Emory, New York; James B. Howes, Tarrytown, N. Y.; Asa W. Hawley, Hawleyville, Conn.; Joseph P. Lloyd, Orange, N. J.; E. F. Hill, J. F. Crosby, C. A. Burton and P. B. Watson, Houston, Tex.

Louisville & Nashville.—On the Southern end of the Pensacola & Selma Division the track is now laid and trains are running to Repton, Ala., 30 miles north of the old terminus at Pensacola Junction on the Mobile line, and 75 miles from Pensacola. About 25 miles more remain to complete the line to Selma.

Louisville, New Albany & Chicago.—In addition to the extension noted last week from Lowell to Dolton, Ill., this company has completed the gap from Rensselaer, Ind., to Dyer, 26 miles, on its Chicago & Indianapolis Air Line, making the line continuous from Dolton to Delphi, 73 miles.

The company has executed a mortgage on the Chicago & Indianapolis Division to John C. New, trustee, to secure an issue of \$2,900,000 new 6 per cent. bonds.

Mobile & Ohio.—Work has been for some time progressing quietly on the Cairo Extension, and it will probably be opened for business by Oct. 1. The rails are now laid from the junction northward 19 miles. The new extension leaves the main line about two miles from its terminus at Columbus, Ky., and runs northward to East Cairo, keeping on the bluffs a little way back from the Mississippi. It is 21½ miles long, and is built under the charter of the Kentucky & Tennessee Company. It is paid for by an issue of \$600,000 Mobile & Ohio Cairo Extension bonds, which are secured by the pledge with the trustees of \$1,000,000 stock and \$1,000,000 bonds of the Kentucky & Tennessee Company.

New York, Lake Erie & Western.—The track is now all laid on the Bergen County Short Line from the main line at Rutherford, N. J., across to the main line again at Ridgewood. It is 10 miles long, will have a double track and will be used as a loop line over which the through freights and some passenger trains will be run. The gain will be considerable, the freight trains avoiding the short curves near Passaic, and relieving the track through Paterson, where the delays incident to the heavy traffic have already provoked a contest between the company and the city.

Fresh trouble is reported on the Buffalo Division, and it is said that a new strike of the yardmen is probable, on account of the action of the company in discharging several men who were prominent in the late strike but had returned to work. Officers of the company say that there will be no trouble.

New York, Susquehanna & Western.—The New Jersey Court of Chancery has refused the application of R. P. Terhune for an injunction to prevent this company from completing the consolidation by which it was formed and from issuing new bonds.

The company is now issuing its securities in exchange for those of the Midland, of New Jersey, upon the terms provided in the consolidation.

Oregon Railway & Navigation Co.—On this company's extension from Walla Walla, the branch from Dolles Junction to Dayton, Wash. Ter., 13 miles, is completed and trains are running regularly from Walla Walla to Dayton, 39 miles. Work is progressing on the main line to Grange City on Snake River.

Ottumwa & Kirkville.—This company has been organized to build a railroad from Ottumwa, Ia., north by west to Kirkville, 10 miles, with such branches and spurs as may be required. The company has secured a large tract of coal land near Kirkville, and intends to engage in the business of mining and selling coal.

Pennsylvania.—This company is troubled by scarcity of water at several points on the main line, where the usual source of supply have failed on account of the long drought. It is necessary to carry water in tank cars to several water stations, and the supply at the Altoona shops is partly kept up in the same way.

During the month of August the number of cars passing Columbia on the Middle Division was: East-bound, 39,808 loaded, 1,629 empty; west-bound, 14,297 loaded, 25,515 empty; making 54,103 loaded and 27,144 empty, a total of 81,247 cars, or an average of 2,621 daily. This was an increase of 7,355 cars over August of last year.

Surveys have been begun for a branch from the Philadelphia, Wilmington & Baltimore in Wilmington, Del., up the Brandywine to Chadd's Ford. This line will reach a number of factories.

Philadelphia & Reading.—The current report in Philadelphia just now is that the Bond plan of reorganization does not meet with much favor. There is renewed talk of a foreclosure of the general mortgage, but no action whatever has been taken in that direction.

Philadelphia, Wilmington & Baltimore.—In pursuance of previous notice this road passed entirely under Pennsylvania control on Sept. 1, the officers of the Pennsylvania Railroad who have been appointed to corresponding positions on that road taking possession on that day.

Pittsburgh, Rochester & Sharpsville.—This company has been organized to build a railroad from Pittsburgh Pa., to Rochester and thence to Sharpsville, about 72 miles.

Sabine & East Texas.—This is the name by which the company formerly called the East Texas is now known.

The road is now completed and in operation from Beaumont, Tex., on the Texas & New Orleans road, northwest to Kountze, a distance of 25 miles. It is controlled by the Texas & New Orleans Company.

St. Louis, Des Moines & Northern.—Track on this road is reported laid from Des Moines, Ia., west to Waukee, 15 miles, where the road connects with the Des Moines & Northwestern. Work is in progress on a branch or extension leaving this line near LeRoy, about eight miles from Des Moines, and running north 35 miles to Boone.

St. Louis, Iron Mountain & Southern.—The grading on the Louisiana Branch is now completed from the main line at Gurdon, Ark., southeast 25 miles to Camden on the Onachita. Track is laid from Gurdon to the Little Missouri River, 10 miles, and is advancing steadily toward Camden.

St. Paul, Minneapolis & Manitoba.—This company has now in operation a branch from Wayzata, Minn., to Upper Lake Minnetonka, the terminus being at the western end of the lake. The branch is six miles long, and was built to accommodate the summer travel to the lake.

Sedalia, Warsaw & Southern.—This road, which was started as an independent local line, has been sold to the Missouri Pacific, and is now known as the Warsaw Section of that road. It is of 3 ft. gauge, and is in operation from Sedalia, Mo., to Warsaw, 42 miles. It will probably be changed to standard gauge.

Texas, Louisiana & Western.—This company filed articles of incorporation in June last. An officer of the company reports that the line is to run from Sherman, Tex., to a point on the Mississippi River at or near Lake Providence, La., and will traverse the most populous and productive portion of North Texas, and some of the most heavily timbered sections of North Louisiana, and will open up a district of country hitherto inaccessible, and its promoters think, will furnish to Northern and Western Texas an ample supply of lumber, which at present it is very difficult to obtain. The gauge of the road will be 3 ft., and the track will be laid with 35 lb. steel rails. The line is being rapidly located and work will commence during September.

Texas-Mexican.—Trains on this road are now reported running through to Laredo on the Rio Grande, 162 miles from Corpus Christi and 90 miles from the late terminus at Aguilares.

Work is soon to be begun on the branch from Peña to Mier on the Rio Grande.

Toledo, Chicago & Burlington.—This company has filed articles of incorporation to build a narrow-gauge road from Kokomo, Ind., northwest to the Illinois line in Newton County. It is apparently intended as a Chicago extension of the Toledo, Delphos & Burlington.

Valley of Ohio.—At a special meeting in Cleveland, O., Sept. 3, the stockholders voted to authorize a new mortgage on the road for \$7,000,000, the money to be used to retire the present bonds (\$1,800,000), to extend the road from Canton, O., southward, to build several branches to coal mines and quarries, and to buy new equipment. There was no serious opposition.

Vera Cruz, Jalapa & Puebla.—A survey has been made in the interest of the Mexican National interest, for what will form a new line from Vera Cruz to the City of Mexico, through the places named, by A. M. Wellington, Principal Assistant Engineer in charge of Location and Surveys of the Mexican National, who has been appointed also Chief Engineer of the proposed Vera Cruz line. There is on this line, as on the present Mexican Railway, an ascent of 8,000 ft. from the coast to the plateau of Mexico, but a location has been found for the new line with grades not exceeding 2 per cent., 105 ft. per mile, while the existing road has grades of 4 per cent. or more; and the new line will require no tunnels, while the old one has 18; and the new one will still have comparatively little rock cutting and, it is reported, will be not only comparatively, but positively, cheap to construct. There is some very peculiar country along the line proposed for the new road. The 2 per cent. grade will extend steadily for 80 miles, and at the top passes along the edge of an abyss 2,000 ft. deep and two miles in diameter. At the summit it is so cold that wheat will hardly head; at the bottom bananas and coffee grow. Within 150 ft. of the line of the road, if a man jumped off the cliff he would fall 1,000 ft. before striking anything; but on the summit the line is as easy for a railroad as a rolling prairie. The scenery is described as sublime. One of the features is a solid river of lava stretching all the way from the Perote Mountain to the sea, 80 miles, filling up what was once a tremendous chasm, and assisting greatly in forming a way for a railroad. This stream, hard and cold as it is, looks exactly as if it were still fluid and flowing.

This line, if built, will enter the City of Mexico over the Mexican National. Its promoters believe that, costing but a small fraction as much as the Mexican Railway, and being much cheaper to work, it can be made to return a good profit; which may very well be. It is not yet fully determined, however, whether it will be undertaken at present.

Verndale, Shell City & Northern.—This company has been organized to build a railroad from Verndale, Minn., on the Northern Pacific, north to Shell City in Wadena County, and thence to the north line of the state.

Virginia Midland.—The controlling interest in this company, heretofore owned by the Baltimore & Ohio and Robert Garrett & Sons, has been sold to the Clyde-Richmond syndicate, which now controls the Richmond & Danville and the Atlantic Coast Line. The announcement, as authorized by officers of the Richmond & Danville, is as follows:

"The Baltimore & Ohio Railroad Company, which owned a controlling interest in the Virginia Midland road, has sold their Virginia Midland stock to a syndicate at the head of which is Mr. John S. Barbour, the President of the road. Mr. Barbour's associates are parties who are largely interested in the Richmond & Danville syndicate, and it is believed that by reason of this common ownership in the two properties more harmonious relations between them will hereafter exist and that the interests of both will be promoted. About three years ago the Pennsylvania Company gave up its interest south of the Potomac by selling to a party of gentlemen interested in the welfare of Richmond, and now comes the Baltimore & Ohio and gives up its interest south of the Potomac. It is understood the Virginia Midland road will be operated as an independent property, and that for the present no material changes will be made."

This transfer is of much importance, not only as giving the Clyde syndicate almost complete control of the roads south of the Potomac and east of the Kentucky and Tennessee line (except the Norfolk & Western), but also as indicating that the Baltimore & Ohio has given up its plans of Southern extension, and will hereafter have no interest south of the Potomac except in the line up the Shenandoah Valley.

The terms of the transfer are not made public, but it is said that they include a traffic contract with the Baltimore & Ohio.

Wabash Valley & Terre Haute.—This company has been organized to build a railroad along the line of the Wabash & Erie Canal from Terre Haute, Ind., to Snoddy's Mills in Fountain County, a distance of 48 miles.

Western, of Alabama.—The branch from Columbus, Ga., to Opelika, Ala., was transferred to the Columbus & Western road Sept. 1, and will hereafter be worked as part of that road. It continues under the control of the Central, of Georgia.

Zanesville & Southeastern.—The sum of \$47,000 has been subscribed in Zanesville, O., in aid of this proposed road, which is to run from that town southeast to the Ohio River. A survey of the line has been made from Zanesville to Chandlerville, 15 miles.